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ILLUSTRATIONS.

Cathedrals of England and Wales: XVIII., Christchurch, Oxford.—Drawn by Mr. Roland W. Paul ..... *Double-Page Photo-Litho.*
Plan of Christchurch Cathedral, Oxford.—Measured and Drawn by Mr. R. W. Paul ..... *Double-Page Photo-Litho.*
Christchurch Cathedral, Oxford: View across the Lady Chapel.—Drawn by Mr. R. W. Paul ..... *Single-Page Ink-Photo.*
Christchurch Cathedral, Oxford: View across the North Transept.—Drawn by Mr. R. W. Paul ..... *Single-Page Ink-Photo.*
Remains of the Shrine of St. Frideswide, Christchurch Cathedral, Oxford.—Measured and Drawn by Mr. R. W. Paul ..... *Double-Page Ink-Photo.*

Blocks in Text.

The Chapter House, &c., Christchurch Cathedral, Oxford..... Page 440
Capitals, Christchurch Cathedral, Oxford 441
Sculpture on Base of an Ancient Cross, Christchurch Cathedral, Oxford 441
Sculptured slab in Chapter House, Christchurch Cathedral, Oxford.....Page 442
Poppy-heads to Stalls, Latin Chapel, Christchurch Cathedral, Oxford 442
Diagrams in Student's Column: "Heating by Hot Water" 444, 445

CONTENTS.

Inland Navigation in Russian Europe 429
Notes 431
Architecture at the Royal Academy.—VI. 432
Letter from Paris 434
The Royal Institute of British Architects 434
The Royal Commission on Metropolitan Water-Supply 435
The Relation of the Architect to the Workman 437
The London County Council 439
Builders' Benevolent Institution 439
Oxford Cathedral 440
The Architectural Association 442
Books: Laxton's "Builders' Price-Book for 1892" (London: Kelly & Co.); Lockwood's "Builder's, Architect's, Contractor's, and Engineer's Price-Book for 1892" (London: Crosby Lockwood & Son); Spon's "Architects' and Builders' Price-Book" (London: E. & F. N. Spon); J. Imray & C. H. W. Biggs' "First Principles of Mechanical Engineering" (London: Bigg & Co.); W. L. Baker's "The Beam" (London: Chapman & Hall); "Palliser's Specification Blanks" (New York: Palliser, Palliser, & Co.); "Popular Map of England and Wales" (Edinburgh: W. & A. K. Johnston); M. D. Burke's "Brick for Street Pavements" (Cincinnati: R. Clarke & Co.); G. M. Lawford's "House Drainage Hydro-mems" (London G. Gill & Sons); H. G. Assiter's "Notes on the Public Health Act" (London: Crosby Lockwood & Son); A. A. Macdonell's "Camping Out" (London; G. Bell & Sons) 443
Victoria Cathedral Competition 444
A Question of Building Penalty 444
Fire-brick 444
Student's Column.—Warming Buildings by Hot Water, XXIII. 444
Surveyorships 445
General Building News 445
Stained Glass and Decoration 446
Foreign and Colonial 446
Miscellaneous 447
Capital and Labour 447
Meetings 447
Recent Patents 448
Some Recent Sales of Property 448

Inland Navigation in Russian Europe.

RUSSIA in Europe is happily provided by Nature with numerous broad, deep, and long rivers, navigable to a greater distance than is found practicable in any other European country, which, with their tributaries, have a collective length of 53,000 statute miles. These rivers act as the conduits of four great rain catchment basins flowing respectively into the Baltic Sea, the Arctic Ocean, the Caspian Sea, and the Black Sea. Art, with comparatively little effort, has contrived by the construction of a few short canals connecting the different navigable river systems here and there, and at one point or another canalising for a short distance some of these natural avenues, to provide for placing in direct intercommunication the whole of the mileage of this magnificent system of inland waterways. This system of inland navigation is placed under the control of the Ministry of the Ways of Communication. Of the official computation of 53,000 miles, there is, however, so far,—up to the beginning of 1890,—only 42,935 miles of inland navigation actually included under the jurisdiction of this body. The active function of the Ministry of the Ways of Communication is discharged by a department known as the Superintendence Bureau of Navigation. Of the 42,935 miles of inland navigation administered by the Bureau, 9,758 miles are stated officially as being only capable of navigation by rafts, 20,268 miles as being navigable by boats, leaving 12,559 miles of waterways without any definite specification. The canalised portion of natural rivers is given as being 2,392 miles, the collective length of the purely artificial canals being 1,336 miles, this making the trifling proportion in relation to the whole mileage of 3,728 miles of artificial and semi-artificial waterways.

By far the most important of the Russian arterial waterways are certainly those which form links in the several through chains of navigation which connect the Baltic Sea at St. Petersburg with the Caspian Sea at Astrakhan. Of these there are three, in each of which that majestic waterway, the Volga, or, as the Muscovites style that river, "The Ocean's Nurse," is the principal factor. Rising in the Valdai hills, some 200 miles east by south of St. Petersburg, at 550 ft. above the sea level, it traverses the provinces of Tver, Jaroslav, Kostroma, Nijni-Novgorod, Kazan, Simbirsk, Samara, Saratoff, and Astrakhan, where it enters the Caspian Sea, which, being 113 ft. below the sea level, makes the total fall of the Volga, from its source to its *débouchure*, 663 ft., which, distributed over a sinuous course of over 2,000 miles (of which 1,794 are navigable), averages the mild gradient of less than 4 in. per mile.

The Volga, with its tributaries, the chief of which are the Oka and the Kama, forms the main avenue for the chief industrial region of Russia, comprising twenty-one provinces, inhabited by 40,000,000 people, out of a total population of Russia in Europe of 90,000,000. The navigation of the Volga and its chief tributaries, according to the varying degrees of latitude, is open for a period of from 199 to 220 days, the navigation usually being closed about the middle of November. During this period of open navigation some 55,000 voyages are made by barges, rafts, and steamers, the aggregate tonnage ascending and descending being 5,000,000. The upward freights consist mainly of grain, timber, mineral oils, and Eastern produce, the downward cargoes being chiefly metals, minerals, textiles, and other manufactured products. M. Nicolas de Sytenko, Engineer to the Russian Government, and a member of the Aulic Council, in a memorandum published in 1890, while admitting that there are no official statistics available, computes that, as an inside estimate, the volume of traffic on the Volga during the open season amounts to 2,900,000,000 ton-miles. Besides several thousands of craft of various dimensions plying on the Volga, there is a fleet approaching 900 steamers, partly engaged in the towing of barges and partly in the conveyance of cargoes. In connexion with the traffic of the Volga and its tributaries there are some 5,000 large barges built yearly, many ranging from 300 to 500 tons, and a considerable number with a remarkable capacity, vieing with ocean steamers,—5,000 to 6,000 tons. Very few of these survive more than one voyage, when they are broken up for firewood. Although, as the crow flies, the Baltic Sea and the Caspian Sea are only separated by an interval of 1,250 miles, the inland navigation from Astrakhan to St. Petersburg is twice that figure; the route by the Marie Canal system, the one most in vogue, being 2,507 miles in length. We in this country, who send 8,000,000 tons of coal yearly to London by rail from the Midlands at forty miles per hour, are apt to smile at the speed with which the phlegmatic Russ is content on the Volga navigation. This slow rate of progression largely explains the reason why most of the vessels are broken up after a single voyage. After making due allowance for passing through locks, rapids, and other hindrances, the average voyage for sixteen hours per diem is twenty-four miles,—say, including the stoppages, one mile and a half hourly. This slow speed along 2,507 miles of navigation,—say twenty-four miles during each twenty-four hours,—averaging 105 days, coupled with a doubtful chance of obtaining a return cargo, has led to this general destroyal of these craft after a single journey.

What is known as the Marie Canal system is in effect a continuation of the navigation of the Volga from Rybinsk, which place is an extensive emporium for the commerce of the western provinces of European Russia, and finds, during the open navigation season, employment for 100,000 men and 5,000 craft. From the Caspian, the line of navigation by the Volga to Rybinsk is 1,794 miles. The distance from Rybinsk to St. Petersburg by the Marie Canal system is 713 miles. The principal traffic on the Marie Canal system consists of grain for St. Petersburg, and, notwithstanding the construction of railways connecting the fertile basin of the Volga with the Baltic ports during the last thirty years, the volume of traffic conveyed upon this navigation system has been doubled during that period. Fully recognising the growing expansion of traffic between the Volga grain districts and the Baltic Sea, the Ministry of Ways of Communication have decided to improve the Marie Canal system. The present locks of the Marie

system for vessels 139 ft. 2 in. long, 28 ft. beam, with 4 ft. 8 in. draught are being superseded by locks of superior dimensions, namely, 227 ft. 6 in. in length, 34 ft. 2 in. beam, with 5 ft. 10 in. draught. The facilities thus being provided will enable vessels carrying 655 tons of grain to proceed right through to St. Petersburg without breaking bulk at Rybinsk, and thus save the cost of transhipment.

The second route, connecting Astrakhan with St. Petersburg, proceeds from the Volga a little above Rybinsk, whence it utilises its affluent, the River Mologa, thence by the River Tschagodolska, the Lake Volksjoe, the River and Lake Sominko, and the canalised River Voltzine—where the summit level is attained at an elevation of 570 above Lake Ladoga. Thence falling to the Ladoga Canal and proceeding by Lake Kronpino, it enters the Marie Canal system, after a course of 466 miles from the Volga. This route is far inferior to the Marie Canal system, which it falls into, though shorter, as it but affords passage for boats 63 ft. in length, 14 ft. beam, and the light draught of 2 ft. The last route to be mentioned as being a through chain of inland navigation between the Caspian and the Baltic Seas, though not the least in importance, and the first in a historic sense, was initiated through the enterprise of Peter the Great in 1698, after his famous tour of discovery throughout Europe in search of knowledge likely to be of advantage in the betterment of his own country. That monarch was induced by two considerations to connect by a series of short canals the navigable lakes and rivers intervening between Astrakhan and his newly-formed capital and Port of Petersburg, now denominated St. Petersburg. The principal object was the conveyance from the Caspian Sea to his new seat of Government of the rich products of Persia and the Orient generally. The other and equally important motive was that the provision of such facilities as would be thus afforded would also be of material advantage in a military sense, eventually as a valuable factor in defensive operations. This system commences from the Volga at Tver, a fortified city, the capital of the Government bearing that name, and an *entrepôt* for the commerce between Moscow and St. Petersburg. Proceeding from Tver by the river Twertza to the water-parting between the Baltic and Caspian catchment basins, which is traversed by the Twersk and Tsninsk Canals, it follows the river Msta, upon which the town of Vijni-Volotchok is situated, from which the system is named, thence continuing by other rivers till it arrives at the Ladgosky Canals, which join the Neva at Schüsselberg. The length of this system is 539 miles, of which only 31 miles are artificial waterways. It is navigated by trains of barges and rafts, and accommodates vessels 119 ft. in length, 28 ft. beam, but with only 2 ft. 2 in. draught. This shallowness has led to this route being, to a large extent, superseded by the Marie system.

The St. Petersburg or Pontiloff Ship Canal, which was opened for traffic on May 27, 1885, affords direct access to St. Petersburg for large vessels which had previously to load from or discharge into lighters in the Cronstadt roadstead. It extends from the Fortress of Cronstadt, which is situated on an islet at the head of the Gulf of Finland, to the Port of Goutouyeff, on an island of that name at the mouth of the Neva, immediately in front of St. Petersburg. This maritime canal, including about one mile of the Neva, is 18¼ miles in length, with a branch canal of 2¼ miles connecting the main line with the Catherinkoff mouth of the Neva, thus making in all 20½ miles. The minimum bottom width of the Pontiloff Canal is 210 ft. and the depth 22 ft. This navigation saves at least ten days' delay in arriving at St. Petersburg, and saves expenses equal to more than the amount of freight between that city and the United Kingdom. The total cost, including wharves at Port Goutouyeff and Pontiloff, has been 1,325,000*l*. The works were commenced in 1878 and completed in 1884. A small charge is made for the use of the wharves at Goutouyeff and Pontiloff. Three basins, with a collective area of 430 acres, have been formed by widening the canal for the accommodation of the import and export trade.

The White Sea and the Baltic Sea are connected by inland navigation, but the route is very circuitous. Vessels can ascend the river Dwina from Archangel to its affluent the Suchona, thence the navigation is continued by canals which connect the Lakes Kubinskoe, Bielozersk, Onega, and Ladoga, from which latter access is obtained to the Neva, and thence to the Gulf of Finland. A project has been under consideration since the time of Peter the Great for making a more direct avenue by way of Lake Onega which would save 1,000 miles, the present route being about 1,500 miles. The canal contemplated by the Russian Government is intended for the passage of barges of about 100 tons, and is computed to cost from 750,000*l*. to 1,000,000*l*.

Like the Baltic and Caspian Seas, the former sea and the Black Sea have been connected by several systems of inland navigation. The first of these was the enterprise of Stanislaus, the last King of Poland, about 1790, who made a canal which connects a tributary of the Western Bug with one of the Dnieper, this navigation being known as the King's Canal. Another inter-sea connecting canal is of Polish inception, connecting the river Stchava and the river Pripet, thus providing passage from the Niemen to the Dnieper, and consequently connecting the Baltic and Black Seas, the former at Memel and the latter at Kherson. This navigation is thirty-four miles in length, and affords an outlet for the agricultural produce of the intervening region principally to the Baltic Sea. This is known as the Oginsky Canal. A third route is formed by the Western Dwyna or Düna, thence by its affluent the Ulla, which is connected by a canal about thirty miles in length with a tributary of the Beresina, which is an affluent of the Dnieper. This connecting link is known as Beresinski Canal, which thus performs the function of placing Riga, on the gulf of that name, in connexion with the Black Sea at Kherson.

At the beginning of the eighteenth century Peter the Great devised the Ivanhoff Canal, to provide a passage from the Black Sea to the Caspian Sea, by uniting the Don with the Volga *viâ* Lake Ivan. This was realised at the beginning of the present century, but the passage from the Gulf of Taganrog to the Volga Delta at Astrakhan is too devious to be of practical use. A much more practicable project has received the approval of the Russian Government for the connexion of the Black Sea with the Caspian Sea by means of a navigable canal, a little over thirty-five miles in length, traversing the water parting between the Don and the Volga, which is formed by the Surpa Hills. The deepest cutting will be across the Surpa ridge, averaging 140 ft., and can be effected without difficulty. The Volga-Don Canal is estimated to cost 2,800,000*l*. It involves the construction of thirteen locks, which are to be constructed so as to contain at one time a couple of vessels of 210 ft. in length, 42 ft. in breadth, with 7 ft. draught. The Caspian Sea trade has attained dimensions that Peter the Great never dreamt of. The execution of the Volga-Don Canal, on the lines contemplated, would craate trade of much larger proportions, and would largely restore Astrakhan its former prestige as the chief *entrepôt* for the commerce between Russia and Persia and the East generally.

Among recently-completed Russian canals is that connecting the rivers Vytegra and Kovja, which forms an additional link in the chain of navigation between the Caspian Sea and the Baltic. It was completed in July, 1886, at a cost of 350,000*l*. The surface width is 70 ft., the depth 7 ft., and the line of navigation 15⅓ miles. In 1887 the Russian Government raised 2,500,000*l*. for the bi-section of the Isthmus of Perekop, which connects the Crimea with the mainland of South Russia. The line of navigation will be 73 miles, the surface width 12 ft., and the depth 12 ft. The works were commenced during 1888 under the direction of M. Louis Coiseau, one of the chief engineers of the Suez Canal. The total outlay is estimated at 8,000,000*l*. The voyage from Odessa to Maripol, round the Crimean Peninsula, is 434 nautical miles, while the Perekop Canal will lessen the distance to 295 nautical miles. The works were announced to be completed in 1893, but this is very doubtful, as the Russian Exchequer has more demands upon it than can be complied with. The *Gazette Russe* in the spring of 1891 commented severely on the neglect of the upper waters of the Volga navigation, which have become shallow through silt.

The primary reason for making the Perekop Canal has not been the exigency of commerce, but the necessity of quicker transit of the fuel required by the Black Sea Fleet from the Donetz collieries, and as affording greater security for coaling in emergency than by the open route around the Crimea. The capital outlay on the Perekop Canal would be much better applied and would be more in consonance with the wishes of the traders of Russia, if devoted to the efficient maintenance and improvements of the inland waterways. The roads of the Russian Empire, with the exception of that from St. Petersburg to Moscow, which is probably unrivalled in the world, are in a wretched condition. This, to a large extent, arises from their being covered with ice and snow for many months in the year, when sledge travelling is universal.

Space forbids a more detailed account of the extensive system of the inland waterways of Russia, but there is one, probably the longest inland navigation anywhere, situated within the limits of the Russian Empire which could not well be passed over without mention. There is a considerable volume of traffic between St. Petersburg and Pekin in the exchange of the several products of the two countries. In Transbaikalia, on the confines of the Mongolian frontier of China, there is a produce exchange of which the world in general hears but little.

The Russians and the Chinese, who are both zealous guardians of their respective frontiers, have effected a definite delimitation of the boundary-line by a long timber structure, which is the scene of the brokerage transactions concerned in the exchange of produce. One narrow exit on the north side of this international mart opens into the Russian dominions, another, on the south side, opening into the Chinese. That portion of the town on the north side contains the Russian community of Kiakhta, and that on the south the Chinese one of Mai-ma-tchin. At sunset a bell is rung, when transactions cease, and both parties retire within their respective boundaries. The Chinese chiefly transport their goods to Mai-ma-tchin on camels; it is five days' journey from Pekin to the Great Wall of China, and forty-five days more for the crossing of the Great Mongol Desert. From Kiakhta the goods are conveyed by water on the Salenga River, thence by the Lake Baikal, and *viâ* Irkutsk, by the Angara (or Upper Tunguska) to Yeniseisk, where that river enters the Yenisei. Here the break of sixty miles occurs, the goods having to be carried by land from Yeniseisk to Makoffskio-Ostwg, whence an avenue is formed by the Ket River to its confluence with the Obi River, which is traversed until that river is joined by the Irtish. From this point the Irtish is ascended as far as Tobolsk, which is a considerable centre for the inter-trade between Europe and China. A little above Tobolsk the route is continued from the Irtish by the Iset River, connected with the Tchusovaya River, which falls into the Kama River some twenty miles above Perm, the principal emporium of the Russo-China trade. The Kama joins the Volga near Spask, at a point fifty miles below Kasan on that river, the chief *entrepôt* for the inter-commerce between European Russia, Siberia and Bokhara. The length of this navigation system cannot be

precisely stated, but, as the distance taken as the crow flies from St. Petersburg to Kiakhta is 2,500 miles, it cannot well be less than 4,000 miles. The caravan track from Mai-ma-tchin to Pekin is 1,050 miles. It might be said that a conveyance involving 4,000 miles of inland navigation and 1,000 miles of overland transit would be so costly as to be prohibitory. Taking the two extremes of St. Petersburg and Pekin, the sea route between the Peiho and the Neva, or the Yellow Sea and the Gulf of Finland, *viâ* the Behring Straits and the Arctic Ocean, is about 12,500 miles, and if by the Straits of Malacca and the Suez Canal, then the voyage would be about 9,500 miles. This circuitous navigation traverses the greatest land-locked area in the world, and collects and distributes traffic from regions remote from any sea-port.

NOTES.

ROBBING Peter to pay Paul is not a sensible way of doing business, but it is the principle on which the London County Council appear to be about to act in the execution of work. The motion of Mr. Burns, amended by Sir T. Farrer, was carried on Friday last, and it pledges the Council to oblige all contractors to pay the rate of wages and observe the hours of labour recognised by the trade unions in the place where the contract is to be executed. Of course contractors will have no objection to this, since they will make the County Council, if necessary, pay a larger sum for the work to be done. The persons who will suffer are the ratepayers of London: in other words the general community of the Metropolis will be to some extent taxed for the benefit of a particular class who happen at the present moment to be the most energetic section of the electorate. This is simply another form of protection, and does not in the least differ in principle from the old protection abolished by Sir Robert Peel, which protected the agriculturalists of the country at the expense of the general community of Great Britain. In the days of agricultural protection the farmers and landlords were the strongest electoral force, now in the management of the affairs of the metropolis the artisan is the most powerful force. The result of such a system of protection is not to produce either better work or greater comfort for the artisan. For the master must pay high wages simply because it is so laid down by the Council, not because the workman is better, and this same high rate of wages will attract more men to the metropolis, so that the competition among the workmen is increased. After a certain period of time the folly of this system will probably be perceived by the general community of London.

WHEN we last alluded to the Durham miners' strike, there seemed to be every probability of an early settlement of this disastrous dispute; but two weeks more have passed, and still no work is being done. When the men got so far as to offer to accept an immediate reduction of 10 per cent., it would have been a satisfactory termination if the masters could have seen their way to allow a resumption of work on this basis. It appears, however, that they were unable to do so, and it is not for any one unacquainted with the extent of their losses to impute blame to them for the firm attitude which they have taken up, though it was impossible to repress a feeling of disappointment at the failure of negotiations which approached so nearly to a settlement of the question at issue. The proportion in favour of a continuance of the strike had gradually dwindled down till a large majority were in favour of a compromise; but the ballot last Saturday on the question of submitting to the full 13½ per cent. reduction, resulted in a majority of no fewer than 31,026 for resuming an attitude of non-surrender. The distress in the district must by this time be very acute,—though the statements with regard to its extent are rather confusing. The *Colliery Guardian*, for instance, remarks in a leader: "Possibly the case is overstated when, in the petition forwarded this week by the Cleveland Ironstone Miners' Association, it it said that 28,000 human beings are on the verge of starvation." While in an article on the subject in the very same issue (May 27) we read: "There cannot be less than 27,000 men idle through no fault of their own, and, with their families, some 140,000 persons must be on the verge of starvation." It must be regarded as fortunate that the mediation of the Bishop of Durham has been accepted, and we may now venture to predict an early settlement of the dispute with a much greater degree of certainty than before. Bishop Westcott,—who happens to have been presiding at a meeting of the Arbitration and Peace Association only this week,—is respected by both parties, and, in spite of being *ex officio* a royalty owner, can be trusted to approach the subject with impartiality, combined with a benevolent earnestness which will, we trust, result in healing the breach. [Since this was put into type, we are glad to learn that the mediation of the Bishop has been successful, and that the masters have agreed to reopen the pits at the 10 per cent. reduction originally proposed by them.]

THE Committee of the House of Commons which had under consideration the London Council's Bill in which this question of "betterment" was again raised, this time in reference to the proposed bridge at the west end of Cromwell-road, threw out this clause by the casting-vote of the chairman. The manner in which the principle of "betterment" was to be applied was by means of a rate on certain owners who might have been assumed to benefit by the bridge. It is just as well that the committee refused to sanction this principle, for the House of Commons itself had already done so, and there is no reason to suppose it would not have done so again. As we have more than once said, if the principle of "betterment" is to be allowed, it must be sanctioned by the Legislature and made applicable to the whole of England. But if this principle is adopted, it seems difficult logically to refuse to enlarge the principles of compensation. Thus, at present, persons get no compensation if the prospect or view of a house is spoilt by a work in respect of which property may be compulsorily taken. If, then, the vague "betterment" principle is to become law, it would be unfair not also to introduce an equally vague "worsement" principle. The more the question is looked at in a practical light, the more difficult also does the just application of any such principle appear, and, therefore, however specious it may seem at first sight, we are convinced it will never commend itself to the general sense of the community.

ALTHOUGH the Earl of Wemyss's amendment on Monday last, to make the provisions of the Water Companies' (Regulation of Powers) Bill applicable also to corporations which supplied water, was withdrawn,—and with good reason, as it would have led to an indefinite postponement of the measure,—the tone of the debate on the amendment was such as to leave no doubt that the question of regulating the powers of water-supplying corporations will be raised again before long. As Lord Grimthorpe pointed out, in the case of companies supplying water the corporation was always on the spot to watch the action of the companies; but when the corporation held the water-supply in its hands, there was no controlling power whatever over them, and any resistance to their action could only be made by a small man fighting a battle against a great corporation; a most unfair position for the consumer who had any cause of complaint. Water is a necessary of life and health, and in regard to the latter point the health of separate members of the community, or at all events the sanitary condition of separate houses, is a matter in which the community at large is practically interested. One house reduced to an insanitary condition for want of water may lead to disease which will affect or infect others in the neighbourhood: and as there is a growing tendency in the present day towards the theory that the water supply of a town should be undertaken by the municipal authorities, there is good reason for the demand that such authorities should be tied down from manipulating or cutting off the water supply in an injurious manner by any arbitrary and ill-judged exercise of official rights.

ON Friday, May 27, Dr. Oliver Lodge read before a full meeting of the Physical Society an interesting paper, reviewing the attempts that have been made to ascertain the relative motion of the ether and the earth. After pointing out the difficulties that arise in explaining astronomical aberration on the undulatory theory, and the consequent necessity of assuming that the ether is not stagnant, he proceeded to give an account of the various experiments that have been devised by Maxwell and others to prove that there must be at least a partial flux of ether with respect to the earth. The results were for the most part negative, though with great ingenuity it was shown that some that appeared negative were consistent with either hypothesis. The final conclusion was that the problem must still be considered unsolved. Without going into details, the question that naturally occurs to an outsider is: If the ether is not carried along with the earth, why should it move with the sun? and if it does not move with the sun, why take the earth's velocity in its orbit as the velocity of the earth relative to the ether?

THE Post Office service is gradually being released from many of the trammels which have so long hampered it, a large instalment of reforms being given to an appreciative public on June 1. Foremost among these is the abolition of the fee for re-directing letters,—no charge being now payable provided the letter is re-posted within twenty-four hours after delivery, and that it has not been opened. This regulation applies to letters only, and it will be advisable to procure a copy of the new rules for information as to exceptions and definitions. Under the latter heading mention may be made of the new classification of book-post matter, which is considerably extended, and now covers a much larger number of commercial, literary, and other documents than heretofore. The Post Office authorities are to be congratulated on their efforts to increase the efficiency and popularity of the service,—a policy contrasting very strongly with that which has been pursued in this Department in the not very remote past.

THE concessions referred to in the foregoing paragraph are rapidly reducing the number of counts in Mr. Henniker Heaton's formidable indictment of the Post-Office a year or two ago; but the "Member for Australia" is one of those indefatigable persons to whom such proverbs as "half a loaf is better than no bread" afford no excuse for slackening of exertion. The goal of "Imperial Penny Postage" is being more vigorously aimed at than ever, and in a pamphlet just circulated, Mr. Heaton gathers up and reiterates the forcible arguments which he has been persistently pressing upon the Government and the Postmaster-General for some years past. Although, of course, a strictly non-political question, our modern Postal reformer is evidently sorely disappointed at finding the Dissolution almost upon us without the change for which he has toiled so hard being accomplished by the Government of which he is a supporter. He has gone so far as to offer to furnish Bank guarantees against loss for a period of three years; but there seems to be some special obstacle which hinders the desired reform, the nature of which is not apparent.

The whole question, we should judge, turns upon the cost of transmission from shore to shore; for, as we are relieved of the distribution of outgoing letters in return for free delivery of those we receive, inland and foreign conditions are really equal in all respects, plus cost of conveyance abroad. Mr. Heaton argues that we are paying far more than we ought for this service; and that it should not cost the 150 per cent. above the inland rate which is now charged is evident from a comparison with the ridiculously low rates for the postage of newspapers, &c. If the loss on the postage of printed matter is so small that we can afford to carry 4 oz. of printed matter to any part of the world for a penny, the day cannot be far distant when a letter weighing half an ounce will cost no more. The point upon which we think Mr. Henniker Heaton is building too much is the great increase of correspondence he anticipates between emigrants and their friends. Probably commercial correspondence would increase considerably with a reduced postage; but we venture to suggest that it is frequently less a question of the few cents for the postage, than a disinclination for letter-writing, that affects the frequency with which the emigrant and "the old folks at home" correspond with each other.

THE daily papers state that the Terrace (which consists of sixteen houses) along the southern side of Kensington-road, and covering about four acres in all, was sold a few days ago for 170,000*l.* We are authoritatively informed that the purchase, being for building purposes, includes only Nos. 1—7 (Shaftesbury House) and the two cottages numbered 8 and 9. These houses have large gardens extending to Cheniston-gardens in the rear; whilst that of Shaftesbury House, No. 7, reaches much farther southwards. They have had many celebrated inhabitants. At No. 1 lived Sir Henry Cole, K.C.B.,—died April, 1882,—who was educated in the Blue-coat School, and to whom was due most of the success of the Exhibition in 1851. No. 6 was the home,—and, we understand, the last home,—of John Leech, where they show the screened attic he had made to lessen the annoyance by street-music, from which he suffered. Into No. 7, a home of the third Earl of Shaftesbury, author of the "Characteristicks"—but since rebuilt—Sir David Wilkie removed, in 1824, from No. 24, Lower Phillimore-place, on the opposite side of the main road. Coming up to London in 1805, Wilkie lodged in Chelsea; at No. 11, Norton- now Bolsover-street, Marylebone; and at No. 10, Sol's-row, by the southern end of Hampstead-road. In 1811, the year of his election as R.A., he went to a friend's house, No. 11, in Lower Phillimore-place, and shortly afterwards removed, with his mother and sister to No. 24. From Norton-street he sent, as Haydon tells us, his "Blind Fiddler" to the Academy Exhibition of 1806; and there he painted his "Village Politicians." At Kensington he did some of his best work, including the "Chelsea Pensioners" (1822) for the Duke of Wellington, and now, we believe, at Apsley House; the "Reading of the Will"; "Duncan Gray"; "Blind Man's Buff"; the "Penny Wedding"; and the "Rabbit on the Wall." In 1825 he left the Terrace for a three years' stay on the continent,—a visit which wrought a change in both his style and class of subjects. For some while before he left England in 1840 for a tour in the East, Wilkie had occupied the present Maitland House, next to the barracks: in his day it stood in Vicarage-place, Church-street, Kensington.

ON Monday next Lord Rosebery will formally open Brockwell Hall Park. The park, about 78 acres in extent, lies on the rising ground between the road from Herne-hill to Lower Norwood,—to which it has a long frontage, lined with elm trees,—and Lower Tulse-hill. To the north lies that part of Water-lane which is now called Dulwich-road, and lies over the course of the Effra river. Six years ago the park was to have been taken over for building purposes, but after protracted negotiations has been secured for the public enjoyment. At the final meeting of the Brockwell Park Committee, held on April 9 last, it was announced that the total purchase moneys, 119,500*l.*, are derived from the following contributions:—The Charity Commissioners, 25,000*l.* out of the surplus funds of the City Parochial charities; the vestry of Lambeth, just within which parish the estate lies, 20,000*l.*; the vestries of Camberwell and Newington, 6,000*l.* and 5,000*l.*; the Ecclesiastical Commissioners, 500*l.*; Mr. J. J. B. Blackburn, owner of the adjoining property, 2,000*l.*; and the London County Council, 61,000*l.* The last-named payment and that by the Charity Commission are made as including, in each case, a contribution of 12,500*l.*, which would otherwise have been payable in respect of Raleigh Park, Brixton, in the event of failure to secure this larger area: see our "Note" of September 3, 1887, and our report on August 3, 1889, of the Council's meeting of the previous Tuesday. Brockwell Hall was built, 1810, for John Blades, a glass dealer on Ludgate-hill, after the designs of D. Riddle Roper, architect. In 1829 the property, originally 60 acres, passed to Joshua Blackburn, his son-in-law.

THE groups of buildings at the head of the Mound immediately to the west of the Free Church College in Edinburgh, extending westward to and including Ramsay Lodge, have been acquired by a syndicate for the purpose of erecting on the site a set of chambers, to be used as students' quarters, studios, &c. The site is one of the finest in Edinburgh. From its high position overlooking Princes-street-gardens, the new buildings will form a conspicuous feature in the view looking southwards from that street. The existing buildings possess no architectural character, although an attempt was made by the proprietor, the late Lord Murray, to give some architectonic expression to the portion comprising Ramsay-gardens and Ramsay Lodge. The matter was placed in the hands of the late Mr. Billings, who attempted to improve Ramsay Lodge by the doubtful expedient of throwing out a heavy iron balcony. He also carried out a battlemented terrace in front of Ramsay-gardens, with a castellated lodge at its east end, but one morning, after heavy rain, the terrace and new lodge slipped into the valley below, and since then nothing further has been done to beautify the site. Ramsay Lodge was built by Allen Ramsay, the poet, as a residence for himself, and from the oddness of its form was known as "Allen's Luggy."* In Ramsay-gardens resided the late well-known editor of the *Scotsman*, Alexander Russell. At one time, it is stated, the Government was desirous of obtaining Ramsay-gardens as a site for military quarters, for which purpose it is most suitable, owing to its proximity to the Castle, but the negotiations for a purchase fell through. The chief drawback to the situation is the steepness of the access, which during a severe frost is rendered impassable to vehicular traffic. The plans for the new buildings have been prepared by Messrs. Sydney Mitchell & Wilson, and show a picturesque group, a conspicuous feature of which is a tower surmounting an archway over Ramsay-lane, which intersects the line of frontage. We understand that it will be some time ere actual building operations are commenced.

THE accommodation placed at the disposal of the Royal Commission on Metropolitan Water Supply cannot be deemed creditable to the authorities,—at any rate, so far as the room in which the inquiry is being held is concerned. This room is an awkwardly-shaped apartment on the third floor of Trafalgar-buildings, Charing Cross, at the Whitehall corner of Northumberland-avenue, in the building which was the temporary home of the National Liberal Club, and the room in question, if we mistake not, was the former grill-room of the Club. If the grill had been there this week the room could hardly have been warmer. The room is low in proportion to its size, and certainly inadequate to accommodate between fifty and sixty persons, the number present when we looked in on Monday afternoon. The sun was shining brightly and warmly on the windows, which had to be opened in order to avoid asphyxiation; and, to exclude the direct glare of the sun, the crimson blinds had to be drawn. The opening of the windows admitted not only air, but the noise of the street traffic, so that it was very difficult at times to hear the Commissioners' questions and the witnesses' answers; the drawing of the crimson blinds, which the sunbeams half penetrated, had the effect of imparting to the proceedings a hue strikingly in keeping with the *couleur de rose* view which some of the companies' witnesses seem inclined to take of the question, or of suggesting (most unwarrantably, no doubt) that the witnesses,—who sit facing the blinds, with the full red glare in their faces,—were blushing at the shortcomings of the companies, or were addicted to stronger libations than they themselves are concerned in supplying. Seriously, however, we think it is greatly to be regretted that no better accommodation could be provided for the holding of this important inquiry,—which affects the well-being of the whole of the inhabitants of London, and which is, indeed, of national importance,—than the room which we have described.

IT appears that there is some feeling in Berlin that German characters should be used in lieu of Latin ones on the new set of street-nomination plates which are about to be fixed at the corners of the thoroughfares in that city. This novelty would be a great nuisance to those non-Germans who visit the Prussian capital, and are not well acquainted with the German language. In a city which delights in the constant increase of non-German visitors and tourists, such so-called "patriotic" pettiness as is only shown in Russia need not make itself prominent. The German characters are even more unsuited for street signs that the Russian or Polish ones, on account of their elaborate lines. A Russian character can, at all events, be deciphered at some distance, even if it is not understood.

ARCHITECTURE AT THE ROYAL ACADEMY.—VI.

1,755; "Nos. 190 and 191 Queen's Gate, South Kensington;" Mr. F. G. Knight. This is the drawing published in the *Builder* of February 13 of this year. The houses are good examples of the modern brick London architecture. The fronts are very simply treated, but the variations in the treatment of windows and other details give a certain interest to every part, and it is noticeable how the same features,—the bay window, the porch, the gable, &c.,—are varied so as to give each house a distinct character, yet keeping them sufficiently in harmony with each other as two contiguous street fronts.

1,757; "Design for Free Library, Stoke Newington;" Mr. Ernest Rüntz. This is a very nice unpretending little coloured elevation in brick, to which interest is given by the treatment of the windows in accordance with necessities of the interior. A plan is added.

1,759; "Nymans, near Crawley;" Mr. Leonard Stokes. This is a sensible way of showing the additions to a house; a plan is given showing the added portions in black, and a sketch of the original house given in the corner. The old house was an oblong mass with an entrance door flat in the wall and a single bay window marking the dining-room, on one side of it. The architect has thrown out a square porch which rises above into a short tower breaking the line of the eaves; the bay is finished with gables in concave curves and a spare panel of carving on the front face; a similar gable is added to the

* Luggy—a wooden basin used for porridge and soup.

extension on the right; to right of this a large wing is thrown out, of which the ground floor is a billiard-room with an open verandah round it forming circular pavilions at the angles; these are only on the ground floor. Is there enough light for the billiard-room? is the only question. The plan shows various smaller internal alterations. The house has been given character and picturesqueness, in a reserved and quiet manner. The projections of the eaves appear to have been increased, giving a strong shadow. We recommend others who exhibit drawings of additions to old houses to follow Mr. Stokes's example, and send drawings which show intelligibly what the additions are.

1,758; "Drawing of the Crucifixion at St. Rémi, Rheims;" Mr. J. P. Seddon. A small but apparently careful copy in colour of this curious and interesting piece of ancient stained glass, in which the crucified figure occupies the centre long panel, the arms extending on two cross panels, over two saints in the side panels. Beneath the feet of the crucifix are the symbols of the cross and a face probably representing the sun, the symbol of Christ as the light of the world.

1,760; "The Tate Library, Brixton;" Mr. Sidney R. J. Smith. This is a pen perspective effectively executed, giving some additional interest thereby to a design which is suitable and solid-looking, but not of very much architectural interest.

1,761; "Coats Memorial Church, Paisley: Entrance Front;" Mr. Hippolyte J. Blanc. A pencil perspective sketch executed in a masterly manner, with firm yet free touch. It shows the west end of a Gothic church approached by a very lofty flight of steps, at the top of which is a triple porch of somewhat Continental character, a large west window above, and the whole flanked by octagonal turrets which spread out the composition and add much to the effect of the whole, but there is no plan to show their function. Presumably they are stair turrets. The lower portion of a tower is shown in the rear. The whole is a very powerful composition, though the west window strikes us as of rather coarse design.

1,762; "No. 191, Queen's Gate, South Kensington: Hall and Staircase;" Mr. F. G. Knight. This is the interior published in the *Builder* of March 17, to which we refer the reader. It is a pleasant bit of staircase architecture, but it seems a pity to repeat in these days the old illogical use of a square block of architecture mounted on the top of a column.

1,765; "Church of the Good Shepherd, Gospel Oak: South-east View;" Messrs. James Brooks & Sons. A beautifully-executed pen drawing, showing the exterior perspective of a church in true Gothic spirit, but without being a mere copy of old Gothic. As the grouping of the building is peculiar, it is a great pity that a small plan was not added to explain it. It appears to present a nave with three aisles of nearly equal height, all terminating in gables, and low narrow side-aisles for passage. The buttresses are treated in an unusual and very massive manner, in lines sloping outwards between the set-offs. There is a double-gabled transept, against which the low lean-to aisles stop; the middle aisle of the nave is flanked by turrets partly attached into the walls. The windows are simply treated in Early Gothic style, with a little geometric tracery in the heads of some of them. The remarkable point about the church is the look of monumental massiveness and solidity which it presents.

1,766; "Part of Second Court, St. John's College, Cambridge;" Mr. W. H. Thorp. An artistic little sketch, with a good deal of character in it.

1,767; "Convent of Sta. Paula, Seville, Spain: Doorway;" Mr. A. N. Prentice. A coloured elevation, "measured and coloured on the spot" and as such of value and highly creditable to the artist. It shows a Gothic doorway in thin courses of darker and lighter bricks, with a broad band of elaborate tiled (?) ornament over it, with circular medallions painted with small figure subjects. This and the decoration in the spandrels of the arch are very carefully and minutely shown, and the drawing is a valuable record of design and colour.

1,768; "Battersea Polytechnic Institution;" Mr. E. W. Mountford. As a drawing this is not very effective in execution, and seems to have been hurriedly executed; it is drawn in pen and tinted in a rather showy style in Indian ink. The grouping, with the two narrower Elizabethan-like gables grouped in the centre, and the larger straight-lined gables at the end wings, is effective, and the three stories are well contrasted in the intervening portions of the front, in regard to the treatment of the windows; the ground story has a large semicircular headed window in each bay, above are two long windows coupled, and the upper story, just under the roof, has small circular windows between Elizabethan-like pilasters. For an institution of this kind it is a dignified and suitable front, but just falls short of being architecturally interesting, for which the style of the drawing may be partly to blame.

1,769; "Cottages, Eaton Hastings, Berks;" Messrs. Ernest George & Peto. Very charming cottages in a simple unpretending Old English style, with the form of low mullioned windows which is more conducive to domestic happiness in humble life than any other form; we cannot give a reason, but we are convinced that it is so. Whether the ornaments of balls and ninepins on the top or at the foot of the gables add to the effect may be questioned. They are simple enough ornament, undoubtedly, but just a little worn-out.

1,770; "New Premises, Heath-street, Hampstead;" Mr. Keith D. Young. Not very attractive at first sight, but this is a capital little water-colour drawing, and shows a good solid treatment of shop-fronts with three-centred arches over the large windows; and the octagon turret over the angle gives a certain distinctive character to the block, which is carried out in brick with light-coloured stone dressings.

1,771; "Pastoral Staff for the Bishop of St. Asaph, designed by the late J. D. Sedding;" Mr. H. Wilson. The drawing is by Mr. Wilson, and is a water-colour drawing which is quite a study in colour and texture. The staff takes the orthodox form of a knop with a crook and a little sculpture subject (Christ's Charge to Peter) within the crook; but the details are treated with the freedom and originality usual in the late Mr. Sedding's work. Above the knop is a little shrine of two stories of niches with small figures in them, the spandrels over the niches being filled up with delicate foliage of a more unconventional type than in Mediæval work. The side face of the crook is lined out up the centre by a small continuous ornament of repeated leaves on either side of a stem, interrupted at intervals by jewels. The whole is a very refined piece of work.

1,772; "Reredos in South Transept, St. Alban's, Teddington;" Mr. A. H. Skipworth. A pencil elevation showing a square panel above the altar, of the same width, with a late Gothic moulding and the usual "perpendicular" square flower enrichment, and an enriched cornice with angels and shields; above this are three niches with canopies, and figures on octagonal pedestals, which are designed in imitation of work in Henry VII.'s Chapel; this was done "by request," so the architect is not responsible for the choice. This part of the work, however, appears rather heavy in comparison with the cornice below, which does not seem to give it sufficient support. A panelled screen the height of the vaulting impost of the church forms a background to the whole.

1,775; "The Wern, Tremadoc, N. Wales: alterations and additions"; Messrs. Douglas & Fordham. This is one of Mr. Hodkinson's fine sepia drawings; there is nothing to show what are the alterations and what is original; the greater part of the house is in a solid Gothic style with mullioned windows, the porch on the left and the portion to left of it, with lofty mullioned windows, appear like part of an old Jacobean house; but what is new and what is old we can only conjecture. It seems extraordinary to us that so many architects in these cases should be content (apparently) with merely getting a good draughtsman to make a drawing which "will get into the Academy," and leave the reason and method of their work entirely unintelligible.

1,776; "Mission Hospital, Jerusalem;" Mr. Beresford Pite. This is a frame of very prettily-executed coloured geometrical drawings, two sections, elevation and plan. The work is treated in an Oriental style, with wooden verandahs ornamented by pierced work in the upper part, and there is a low eastern-looking dome over the entrance-hall. The plan is that of a pavilion hospital with large wards for men and smaller ones for women on the opposite sides of the corridors, an isolation ward and private ward divided up into small rooms or cubicles. Whether the arrangement of the administration portion in similar blocks on each side of the entrance, but not closely connected, would be convenient, may be a question. There is a refreshing originality about the work and the manner of showing it in the drawings.

1,778; "Bury Municipal Buildings;" Mr. A. N. Bromley. This gives the perspective view of the building accompanied by a small plan. The site is triangular, and the reception rooms occupy the greater portion of the principal front. The Sessions-house is in the centre of the building parallel with the main front, and the principal committee-rooms in convenient proximity with it in an adjoining portion off one of the main corridors. The defect of the plan is that the all-round communication is not complete, being blocked at one angle. Architecturally the building is effectively grouped as a whole, but the details are rather commonplace.

1,780, "Design for Stained-glass Window: Tree of Jesse;" by Mr. G. W. Rhead. This is a pencil drawing showing only the linear design without the colour; it is to be commended both for the well-filled effect of the design, and for the conventional and decorative treatment of the "tree," which takes the form of branching scroll-work of Early Gothic character: Jesse "trees" are too often treated in a too realistic manner.

1,781; "Monument to the late Mrs. Rowley, St. Neots;" Mr. F. A. Walters. This is the design which was published in the *Builder* of May 7, and is a fine modern example of a monument in a Mediæval form. The monumental figure lies under a richly-foiled canopy arch, with a lofty and richly-decorated ogee gable rising over it, terminating in a finial which forms part of the bracket for the central figure of the group in niches at the top of the composition. The space above and on either side of the ogee is divided by mullions which rise into pinnacles dividing the niches at the top. Angels are sculptured in bas relief here, holding shields, their figures and wings crossing and breaking up the vertical lines of the mullions. The effect of the whole ought to be very fine and decorative in execution. Tne figures are nearly life-size.

1,783; "Stables, Pewsham, Wilts;" Mr. C. E. Ponting. Two drawings executed on brown toned paper and whitened where the plaster covering occurs on the building, as in another drawing by the same architect, already referred to. The stables are quietly picturesque in appearance, but owe something of their effect to the manner of execution of the drawings, which gives a certain degree of exceptional character.

1,784; "Design for a Small Country House;" Mr. G. C. Horsley. Two small elevations, slightly tinted, and two plans, and (a detail often forgotten) the north and south point shown in connexion with the plans. The design is of a quiet cottage-like type with mullioned windows.

1,785; "Convent of St. Marcos, Leon, Spain: Façade;" Mr. A. N. Prentice. This is a delicate little coloured elevation of a façade of plateresque architecture, with a "fronton" looking something like a big timepiece breaking the line over the central arch, but a delightful and interesting specimen of Spanish Renaissance of this type. The drawing, stated in the margin to have been measured and coloured on the spot, is executed with remarkable delicacy, and is a high credit to the patience and taste of its author.

1,786; "Nos. 39 and 40, Margaret-street, Cavendish-square;" Mr. F. L. Pearson. Street fronts in red brick, with a variegated skyline formed by a large scroll at each side and two semicircular gablets in the middle. On the ground floor a shallow segmental arch is carried right across each front, grouping the door and ground-floor windows under it, and offering an apparent support to the balconies. The windows are treated with brick mullions and brick mouldings over them, the whole being carried out conscientiously in a brick style which is suitable, but of which the details are not very interesting. One is always glad, however, to see a complete brick front for a street house, as a protest against the inferior and patchwork effect of "brick with stone dressings."

A NEW CLOCK has just been fixed at the new training stable, Newmarket, to the order of Captain Heaton, of Stetchworth-park. This clock was made by Mr. J. W. Benson, of Ludgate-hill. It shows time upon a dial 3 ft. 3 in. diameter (illuminated by electric light), and strikes the hours upon a 2-cwt. bell.

LETTER FROM PARIS.

A FEW days since the posthumous exhibition of the works of Ribot was opened at the Ecole des Beaux-Arts. By general consent this exhibition, which is closed to-day, is one of the finest and most interesting exhibitions for some time past. The collected works were not numerous; the 150 pictures and 170 drawings had been carefully selected, and formed a compendium of the work of the old artist who was great and original, and showed a sincere love of Nature, even in his mistakes. We had his copies of Watteau, done in the period of his early struggles; then his studies from everyday life, humble interiors, peasant girls at work; small pictures valuable for the minute care expended on their execution. His portraits also must be mentioned, so powerful in their light and shade effects, and a few great pictures as vigorous as those of Ribeira. Then the drawings and studies showing the inner work of his artist life, his knowledge and his industry combined. This fine exhibition has added much to his posthumous renown.

Though the Salon of the Champs Elysées has still a month to remain open, the members of the Société des Artistes Français are already organising the jury for their next year's exhibition. The painters propose to appoint, for three years, sixty jurors chosen from among those who have received honours and those who have exhibited at least five times. Twenty members from among these would be chosen by lot each year. It remains to be seen whether this arrangement will give any more satisfaction to the easily dissatisfied tribe of artists.

In the section of engraving, the médaille d'honneur has been given, by thirty-one out of fifty-two votes, to M. Paul Mauron. This artist, a native of Avignon, has exhibited this year two fine lithographs, a "Tête de Mérovingien," after J. P. Laurens, and "La Tentation," after Bourgonnier.

At the Hôtel Drouot there has been a sale recently of the works of the painter Audrieu, not very much known except as a pupil of Delacroix who had acquired the art of copying in a curious fashion the style and colouring of his master. One result is that a good many drawings were sold on this occasion under the name of Delacroix, which were probably only clever repetitions of the work of that master. The regular picture dealers kept in the background and left to some amateurs the satisfaction of having, as they supposed, obtained original works by Delacroix at a very low price. Among the works sold were a whole series of sketches of the decorations executed by him for the Salon de la Paix in the old Hôtel de Ville. These pictures, the authenticity of which is not disputed, have been purchased by the Municipality, which has rightly wished to obtain and preserve these unpublished documents of a fine work by the master, now destroyed.

It is announced that the house in the Rue de Furstenberg, where Delacroix long lived and worked, has been distinguished by a marble slab affixed to it, recording the date of his birth and death. His studio still exists and is now occupied by a talented painter, M. Maillard.

A Parisian journal has published recently a decorative composition commissioned by the Government from M. Joseph Blanc, and which is to be reproduced at the Gobelins manufactory. It appears to be intended that this tapestry should figure at diplomatic audiences, and should accompany M. le Président on his journeys, in order to decorate the places where official receptions are held in his honour. It is a curious idea, and it hardly seems that the head of the State ought to require, to keep up his personal prestige, a "toile du fond," as they say in the theatre, packed up amid the Presidential luggage and displayed wherever he stops on his journey; a kind of accessory which will be more likely to create a smile than to impress the imagination of the crowd. It is said, however, that the procedure is not without precedent, and that in former days the Kings of France, when they went about, were followed also by their State tapestries which successively adorned all the châteaux where they stayed. In the present day of plainer manners travelling decorations can hardly be considered a necessity, and M. Carnot, who in his tastes and character is simplicity itself, would be the last person to wish for such accompaniments. As for the composition of M. Blanc, it represents in the centre (always according to aforesaid journal) the monogram of the Republic surrounded by the collar of the Order of the Legion of Honour. On each side of the central *motif* is seated an allegorical figure, the one representing Truth, the other Justice. Above, a child or genius with difficulty restrains the ardour of the emblematic bird of Gaul, represented in full crow. At the bottom reposes a lion, emblem of the popular power,* kept in restrain, by chains of flowers held by two Cupids. Flags and attributes relating to Agriculture, Commerce, and the Arts, fill up the composition. Taking into consideration, however, the proverbial slowness of work at the Gobelins, it will probably be four or five years before this piece of official decoration is completed, and it is generally thought that it will prove to be an "immeuble" in the literal sense, and will never enter in its travels.

The Louvre has acquired for the department of modern sculpture two fine busts by Carpeaux, that of M. Delaborde of the Institut, and that of M. Fiocre, who, under the second Empire, was a brilliant operatic star. The Cluny museum has obtained a curious miniature in oil representing Benvenuto Cellini, and some splendid Arab textiles of the Byzantine epoch, resembling those preserved in the treasury of St. Sernin at Toulouse.

The mortuary dépot constructed at Père la Chaise has just been inaugurated. It is the first establishment of the kind in Paris, and is expected to be of great service to the poorer classes of the population. The general style is naturally very sober; the interior arrangements are most carefully carried out. The floor in the halls is in mosaic; the walls, painted in oils, are bordered with a wainscot of black marble. All the work has been directed by the architect, M. Formigé, who has for a long time been studying similar establishments in other countries. In the Church of Notre Dame des Champs a mural decoration has just been inaugurated. It has been executed by M. Joseph Aubert, and represents "The Glorification of Our Lady of the Fields," the patron of horticulturists and the cultivators of the environs of Paris. This important work has been under the direction of M. Ginain, architect. It is announced that the new Minister of Public Works, M. Viette, has the firm intention of carrying out the study of metropolitan railway working, already begun by his predecessor. Will some happy solution come to him soon? We can hardly think so, though the Minister has expressed his willingness to present it to Parliament by the end of June. We may notice in passing, that the pictures, pastels, and sketches of Mdme. Bertha Morisot are now on view in the Boussod-Valadon Gallery in Boulevard Montmatre. Mdme. Morisot was sister-in-law of the painter Manet, and one of his best pupils.

The recent death of the painter on enamel, Claudius Popelin, has been a serious artistic loss. Popelin was born at Paris in 1825, and studied first under Picot and Ary Scheffer, and made his début in the Salon in 1852 by a remarkable picture, "Dante reading his poems to Giotto." From 1860 he gave himself almost exclusively to enamel painting, and produced in this form his portraits of Julius Cæsar, Pico de la Mirandola, Napoléon III., &c., and a composition called the "Renaissance of Literature," which gained him a medal in the 1865 Salon. He had not exhibited since 1867, but continued to execute remarkable enamels. He published also various works, notably one entitled "Cinq Octaves de Sonnets," illustrated by engravings of his own. He leaves a son, M. Gustave Popelin, also a painter of great talent, who gained the Prix de Rome in 1882.

THE ENGLISH IRON TRADE.—The news of the termination of the Durham miners' strike will be welcomed on all sides, as there is now a probability of business returning to its normal level. By the intercession of the Bishop of Durham the masters have been induced to accept an immediate reduction of 10 per cent. With the near approach of the holidays there is little doing in the English iron market. In most of the crude-iron centres a quiet tone is observable; but rates, generally, are firm. Manufactured iron is in sluggish request. Tinplates are in fair demand; but the steel market shows little inquiry. Shipbuilders and engineers are only moderately employed. The coal trade generally exhibits fair movement.—*Iron.*

* Tennyson came near anticipating this emblem, in the picture symbolising The People in the "Palace of Art,"—

"Here played, a tiger, rolling to and fro
The heads and crowns of kings."

The present emblematic animal seems to be, however, "a very gentle beast, with a good conscience."

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS:

CASTINGS IN METAL.

THE fourteenth general meeting of this Institute for the present session was held at Conduit-street on Monday evening last, the President, Mr. J. Macvicar Anderson, in the chair.

The minutes having been confirmed, the Secretary read a long list of gentlemen nominated for election as Fellows, Associates, and Honorary Corresponding Members.

The President said that as they had a somewhat full programme to get through that evening, he should not venture to occupy their time with any remarks of his own. There were no fewer than four papers to be read, the first of which would be by Mr. Alexander Graham. Before calling upon Mr. Graham he wished to intimate with regret that Mr. Alfred Gilbert was unable to be with them on that occasion; he much regretted his inability to attend. An interesting letter had also been received from Mr. Alma Tadema, regretting his inability to be present.

Mr. Alexander Graham, F.S.A., then read a paper giving an interesting historical outline of the application of metals to architectural design in all countries.

The Precious Metals.

Mr. C. Krall followed with a paper on working in the precious metals. The following is an abstract:—

The structural and main features of architecture being never, or very rarely, cast in precious metals, the author dealt with those of furniture, decoration, and articles of use, in which gold and silver had been employed in all ages down to the present. It was surprising, on investigating what parts of such work should be cast as against parts made of hammered plates, to find how limited the legitimate use of casting in precious metal was; while, apart from its intrinsic value, the quality of the heavier cast silver and gold work was very inferior to wrought. First among the legitimate uses of cast work was high relief sculptured work, that was, all such parts which would first be modelled in clay or wax, and which, to work by hand, meant a great deal of costly and tedious handwork, and necessitated a number of solder lines. Thus a figure or animal 4 in. high, with legs and arms or wings projecting, would be cast. Secondly, the decorated mouldings with patterns that repeat, and all such parts which, offering resistance, required greater thickness of metal than could easily be worked out of sheet-metal. Thirdly, the number of repeating ornaments, perforated borders, and crestings, of which a few copies only were required, and which would not justify the engraving of a steel die for stamping. A figure, 18 in. high, however, would rarely be cast, particularly when modelled in high relief. This would be embossed out of thin plate, as a whole or in sections, and soldered together or nailed down to the wooden or other foundation,—a process used by the ancients, and in Byzantine art as well in the present day. Precious metal was never cast in its pure and soft state, but was used in its harder alloys, the composition varying according to the colour and the amount of hardness desired. The process of casting flat work, mouldings, and ornament, was by the sand moulds; that of hollow work, with sand cores and by the wax process. The latter was the better for uniform thickness. By sand moulds the thickness varied greatly, which caused the thicker parts, in cooling, often to fall in, which was very detrimental to the work, and often impossible to correct. Knowing what parts should be cast, the designer would work with great advantage, and in many cases effect an easier and cheaper working. Silver and gold work was not now, he was glad to say, estimated chiefly by its weightiness; the lighter it was, the more carefully it must be made, so as to be strong in all its parts. In designing silver and gold work it must be borne in mind that even plain mouldings did not always turn out satisfactorily in cast work; and that for all better work they were made in flat or turned up in sections of wrought tough metal and joined together. Mouldings suitable for stone or wood should not be introduced. Old work should be examined, much of which was to be found in the museums, and in which it would be found that the mouldings affording the greatest charm were mostly very indistinct and often mere repeti-

tions of lines or combinations of squares and round wires, with now and then a hollow and a twisted wire between. The old goldsmiths had no lathes and no machinery; they filed, engraved, swatched, or rolled their mouldings; and for tracery work soldered one plate above another, with a round wire sometimes laid over it. Mr. Krall concluded by exhorting designers to study the old work and learn its mysteries, and to let designs be carried out under its influence; then, whether cast or wrought, or made by any other process, the work would give satisfaction, and give delight both in the present and in the future.

Castings in Iron.

Mr. H. Longden read the third paper, on castings in iron. He said that in the usual process of iron-founding, wooden models were made by skilled model-makers, whose training was quite apart from that of a carpenter or cabinet-maker. The sides of the model or any relieved parts must not be square, but slightly "stripped" or bevelled to ease the draught from the sand. The model was laid on a board on the floor of the foundry which was covered with sand, a cast-iron casting box, called the "bottom box," which was put on the board over the model, and the foundry sand sifted upon the model, first through fine riddles until the whole surface of the model was equally covered with it, and then through a coarser riddle. The sand was carefully and evenly rammed with iron rammers until the box was filled. The whole was then turned over, and the board which was cramped to the box taken off, and the "top box" was put on, and the filling with sand and ramming process was repeated until the model was completely enclosed in evenly, lightly, and yet firmly rammed sand. The making of the channels through which the molten iron was to be run into the sand matrices was an important matter, and had to be carefully arranged. The "top box" was then removed and the model taken out, leaving a beautiful impress of the ornament, if any in the sand, which was carefully dusted over with fine-ground charcoal. Where the surface of a casting was to be full of ornament, the model was often put in again and evenly pressed upon the charcoal to give the fine surface seen on good castings; and this must be done with perfect accuracy of "register," the slightest inaccuracy blurring the impress. The two boxes were then cramped together again with iron cramp and wedged with wooden wedges. Casting with cores was another kind of moulding, and one requiring much skill and patience. If a great number of castings were required, instead of a wooden model cast-iron models were used. Wooden models were sometimes carved, and at others made the groundwork of modelling in wax or in gesso if the effect desired were specially soft. There was also a very pretty process called "reversing" by which a casting may be made from a solid block in plaster or wood. The choice of the iron for castings was an important matter, different mixtures being used for different castings. Most of the iron now used was smelted from the ore by "hot-blast," but when great strength and tenacity were wanted the older fashioned "cold-blast" was still utilised. When the iron was melted in the cupola, or furnace, the casting began. The furnace was "tapped" near the bottom with an iron bar, the white hot molten iron ran down a spout prepared for it into ladles of iron protected from being burnt by sand. The ladles were carried by the moulders to the casting boxes and the molten metal poured through the gates or channels into the place prepared for it in the casting boxes. When the iron had been long enough in the sand to set, the top box was taken off and the casting taken up with the tongs, the loose sand about it removed, the gates knocked off, and it was reared up to cool until the next morning. Cast-iron some time ago had fallen into a certain disrepute; but with the further study of materials it had been found that it had qualities of cheapness and usefulness as well as of reproducing a suitable model with perfect precision and delicacy. In designing for cast-iron, it was to be remembered that when the models were paid for, enrichments cost nothing if suitably applied. This facility for ornament, although a temptation to the unwary, in the hands of a master produced fine results. The ornament, if applied, should rarely rise to much relief. A front for a fire must have a due proportion between its parts; the bars must be of the right plan and section; a grating must be fairly even in the thicknesses of the parts; a casting should not be enclosed with heavy mouldings like a frame; and many other rules, simple and reasonable, could be learnt from any competent founder. Mr. Longden concluded with the opinion that respect for the real conditions of the work to be done, as was always the case, would produce a finer effect than clever *tours-de-force*, such as imitating wrought-iron, stone, or wood in cast-iron.

Castings in Bronze.

This was the subject of the fourth and last paper, read by Mr. Herbert Singer, and of which the following is an abstract:—

The author considered the subject of bronze castings a very wide one; the most ancient metallic objects yet discovered having been made of it. Pure bronze was simply nine parts of copper and one of tin. A vast number of alloys, however, were produced for different purposes, and the Japanese were said to use 200 distinct alloys; delicate colours depending on the alloy used. The author, having referred to the ancient knowledge of the existence of tin in Great Britain, was of opinion that the proportion of five parts copper and one tin was the alloy of the bronze implements of the ancients. It gave a hard substance, but would not suit many of the bronze productions of the present day. The brothers Keller, who worked in France in 1699, used for their alloy 91⅓ parts of copper, 5½ parts of zinc, 1¾ of tin, and 1¼ of lead for statuary work; others used only about 82 parts of copper. The sculptors during the Renaissance were often their own founders, and generally used a metal of good quality, in order that their work might not be injured in the casting. Having referred to the alloys of brass and the contraction inevitable in the use of copper, Mr. Singer thought bronze statuary would be a more exact reproduction of the sculptor's model if an alloy similar to bismuth could be found that would give no contraction. If bismuth were not so expensive it could be used with great advantage in the composition of bronze. The subject of alloy led to that of soldering. The Romans had not used solder, but it evidently had been used by the Saxons. The alloy for gold solder was silver, for silver solder silver and brass, and for bronze a mixture with brass made a good solder. The two processes of casting bronze into any required form were known as the "sand" and the "*cire perdue*." The founders of early ages used the wax, or latter process; but it had not been and was not so much practised in France as in Italy, perhaps because a very fine sand could be found near Paris by which the best castings by the "sand" process could be produced. This sand was also much exported, both to England and America. Mr. Singer then proceeded to describe moulding by the sand process. For statues of more than life-size it was necessary to have a lofty foundry in order to raise the large flasks from the pit in which the large pieces of metal were cast. The pit should be at least 12 ft. square and 10 ft. to 12 ft. deep. The flask for a statue 10 ft. in height would weigh 5 tons or 6 tons and should be so constructed of plates that it could be increased or reduced in size to suit the dimensions of the model. The model to be cast being then placed in the flask partly filled with sand, the preparation of the mould was commenced. The making of the mould, which had been well described by Mr. George Simonds as the concave or negative imprint from which the positive or convex imprint was to be obtained, would sometimes take three months, according to the number of pieces. The core had then to be prepared, and was a rough copy in sand of the original model, slightly reduced in size over the whole surface; the difference between the size of the core and the model giving the thickness of the bronze casting. The core was held in place by iron bars so as to leave half an inch of space between the exterior face of the model and the interior face of the mould. The mould and core being thoroughly dried, the flask was then lowered into the pit, and the molten metal run in. The flask, if all had gone well, being unscrewed, and the runners, or channels, which conveyed the metal to different parts of the mould being cut off, there should be but little work to complete the bronze statue. For the "*cire perdue*" or "lost wax" process a very different method was followed. After describing the old process adopted by Cellini of building up the core first, Mr. Singer dealt with the present mode in which the plaster moulder and the bronze founder relieved the sculptor of the mechanical part of the work. The sculptor modelled the work in clay or wax, the plaster moulder reproducing it in plaster, making probably several copies; one was handed to the bronze founder, whose first duty was to make an exact reproduction in moulder's wax, with a core inside it. He might effect this with a gelatine or a piece-mould,—according to the subject. If a piece-mould, the work was laid down and the lower part covered with clay; upon the upper part the liquid plaster, of the consistency of thick cream, was moulded into appropriate forms fitting together; the whole being protected and kept together by one large outside piece. The upper part being completed, the work was turned over, the clay from the lower part removed, and it was treated in the same way as the upper part. If using gelatine, the moulder covered the work with clay of the thickness the gelatine needed to be, and on the clay he formed two coats of plaster to keep the work steady. The clay was then removed, and the gelatine poured into the place it had occupied,—a mould of gelatine being the result. Having, whether by the piece-mould or gelatine method, obtained a complete mould the moulder formed a core inside it. The mould being taken apart, the core was pared down to allow as much space between it and the mould as the metal should occupy. The mould being put together again with the pared core inside, the wax was poured in, producing an exact reproduction of the original model. The wax was then handed to the sculptor, who removed all seams and generally "touched it up." Being returned to the moulder, he then made the mould to form the metal, which mould was composed of a substance, kept secret by most founders, applied in layers until there was a tolerably thick coating all over the work. A cage made of iron was then formed round the work, and sand rammed between the spaces. The whole being placed in a muffle, the wax was melted by means of gas, the mould thoroughly dried, and, while still hot, taken out of the cage, and, if necessary, placed in an iron flask and the metal poured in. It only remained to open the mould, remove the core, clean the casting, take off the runners, and apply the patina. An eminent sculptor had described the wax method of bronze-founding as an art, the sand as a trade. He (Mr. Singer) considered that an exaggeration. For some work, and where cost was an object, the sand process was the best. For others, especially where casting of the highest excellence was required, the wax process was the one to use.

A discussion followed, in which Messrs. J. M Brydon, Onslow Ford, George Simonds, Starkie Gardner, G. Aitchison, H. H. Statham, W. White, Sidney Vacher, and H. R. Pinker took part, and a vote of thanks to the readers of the papers having been carried by acclamation, Mr. Singer and Mr. Alexander Graham replied to some of the points raised in the course of the discussion, of which we will give a summarised report next week.

It was announced that the next meeting of the Institute (which will be a business meeting) will be held on Monday, June 13.

THE ROYAL COMMISSION ON METROPOLITAN WATER-SUPPLY.

THE Commissioners have held three sittings this week, and their inquiries have been mainly on the lines indicated in last week's *Builder*, with respect to the two companies first taken in hand. As the New River and the East London Companies* draw their primary supplies from the Lea, its conservators followed the companies with evidence as to the quantity and quality or purity of the water. The witnesses put forward by other companies were examined upon statements previously sent in by the companies at the request of the Commission. The examination in each case resolved itself into a rigid scrutiny of facts and figures as to present and future sources of supply, storage capacity, areas for filtration, machinery for pumping, actual and prospective supplies in proportion to population, the methods of ascertaining the population, and fixing the average of supply per head per day, and the data for determining the growth of population, the increase in the use of water for baths and closets, the waste by neglect and bad fittings, and the saving to be effected by vigilant inspection under present

* For report of evidence relating to these companies see last week's *Builder*, pp. 418 *et seq.*

or more stringent regulations. Many questions were put as to what constitutes a house or a supply, and the means of arriving at the average population for each. In some cases the facts which have been ascertained for small areas have been found to concur with the result arrived at by dividing the estimated population by the number of supplies. The estimates taken, it was said, were those of the Registrar-General; and Dr. Ogle thereupon remarked that for the whole of London the Registrar-General uses the figures of the water companies; that there are no census returns of tenements; that a house is not a tenement; and that in one of the Peabody buildings there are 716 tenants. The Chairman of the Commission, Lord Balfour of Burleigh, appears to regard it as a matter of vital importance to ascertain with all the accuracy possible the actual population of a company's district and the actual supply, so as to test the stated averages of consumption, and in this way to obtain correct data for estimating the probable requirements of the future.

The Lea Conservancy.

The points to which the examination of witnesses was directed were two—the sufficiency of the water to meet the requirements of the navigation and the present demands and any future demand of the water companies; and the pollution or purity of the water. The witnesses were Mr. Geo. Corble, Clerk; Major Flower, Sanitary Engineer; Mr. Job Child, Engineer; and Mr. Young, Consulting Chemist; who, however, was offered as the witness of the East London Water Company rather than of the Conservancy.

From the evidence of Mr. Corble, it appeared that last year there had been a correspondence between the Conservancy Board and the water companies about the supply of water, and the Board also received complaints from traders of the shortness of water in the lower reaches of the navigation. Only once during last summer was the full quantity of water reserved for the navigation passed down, and on that day the water in the lower reaches was exceptionally low. The Board had at all times to consider their obligations to the water companies, and they never took more water than was necessary for the navigation, nor allowed any to run away that the companies might want. The conservators and the companies accommodated each other on "give and take" principles, and did not enforce legal rights. The Conservancy for a long time was unable to obtain a substantial conviction for the pollution of the river with sewage, because the magistrates leaned to the side of the towns; but now proceedings could be taken before a county court judge, and that had been done in one case with a good result. There was a diminution in the barge manure trade which was partially diverted to the railway. A good deal of gas lime was brought up the river; and from these there was a little pumping at night time; but the barge owners are prosecuted if they are caught at it. These things are above the East London intake, but below that of the New River.

Major Flower was examined in much detail as to the actual or possible sources of pollution, and he stated how the sewage of many towns and villages was disposed of. He said there was no pollution above Hertford, and at Hertford it was local and did not affect the water at the intakes. It was below the New River intake and fifteen miles above the East London. He had condemned it strongly as "black, filthy, and shining" before the Rivers Pollution Commission in 1886, and the treatment had not altered since. The Conservancy had not remonstrated against the discharge of malting water. A map exhibited and professing to show "recognised pollutions" represented things unfairly. It was a "most unfair map." There were eighty-seven black dots above the intake of the East London; and he did not recognise them; they did not exist as pollutions, although they might exist as possible sources of pollution, if people neglected their duty. The water of the river was at one time deteriorating, but now it was improving. The sources of the tributaries were lower down the valley; and he thought that was due, not to pumping from the chalk, but to the rainfall. He had seen the Lea above Luton so dry that you might put it into a 6-in. pipe. The East London's source of supply was perfectly sound and satisfactory; there was no pollution which affected the company's water. There was practically no sewage pollution above the New River intake.

Mr. Child was examined as to the records of the flow over Childe's Weir, and was desired to give the lowest flows for certain definite limited periods, the chairman remarking that, whilst there was doubt about averages, there was none about a minimum. Excepting at Ware, below the junction of the Manifold ditch, he had never observed any signs of sewage contamination. His analysis of various samples did not indicate any serious pollution of such a character. There was some evidence of slight contamination by organic matter of vegetable origin in some places from the Stort, the Ash, and the Lea, above Hertford, and this was accounted for by the fact that the rivers were there very full of vegetation. Immediately below the Ware Mill Lock, and for some distance further down, the Lea, especially in hot weather, presented every appearance of sewage pollution. The water was dark, and had an offensive odour, and there were many pieces of black, slimy substance seen floating on the surface, This was caused by the discharge of the effluent from the Hertford sewage works into the Mainfold ditch, which joined the river Lea just below the Ware Mill Lock. The effluent from these works was extremely weak in sewage matter, and the effect upon the appearance of the river was much worse than would be expected. He had no doubt that this was due to the development of sewage fungus in the cutting which conveyed the effluent from the works to the ditch. This growth appeared to possess the property of absorbing the albumenous matter, and also the chlorides and other inorganic matter from the effluent, and of giving them up to the water when decomposing or disturbed. Its decomposition was also accompanied by the formation of sulphuretted hydrogen and sulphide of iron, which produced the unpleasant odour and dark colour of the water. The black, slimy mass found floating on the river below the Manifold Ditch was this fungus in a decomposed state. Analysis of the water from above and below the ditch showed the effect of the sewage effluent, and this, although generally slight, was unmistakeable. The point below the ditch at which the samples were taken was not in the main stream of the river, but in a practically stagnant pool. Lower down the river, below the junction with the main stream, nearly all trace of the pollution was lost. He was of opinion that although this pollution was objectionable locally, it did not affect the quality, as regarded the quantity of organic matter present, of the water of the river at the intake of the East London Company at Pondersend. In 1891 he made analyses of samples of water taken above and below each tributary or probable source of pollution to ascertain the condition of the water of the Lea as regarded the quantity of organic matter in solution. The results showed that the river was at the time in a remarkably pure condition, that the tributaries did not add to the amount of organic matter, that no appreciable pollution reached the river from the sewage farms, and that the water at the intakes contained less organic matter than the water at the sources of the Lea and the New River. He had no hesitation in saying that the water at the East London intake had improved of late years, and that throughout the year it was generally of excellent quality as regarded freedom from organic matter. In April of this year he had made a series of analyses which showed that there was a sudden increase of organic matter in the water below the junction of the river Stort, but it was of vegetable origin, and was of no importance, and the amount gradually diminished until at the East London intake it was little more than one-third of a grain per gallon, which was appreciably less than in 1891. On both occasions the weather had been fine and dry for about three weeks before the samples were taken. The analyses, therefore, showed the normal condition of the water when unaffected by floods; and they conclusively proved, by the small quantity of organic matter present in solution, the excellence of the water as a source of public supply. He had also analysed samples of water after filtration and samples of that from the well, and submitted the detailed results.

The witness was examined, or rather cross-examined, at considerable length as to the time and manner of the selection of the samples, and also as to analytical tests. His theory as to the action of the fungus was founded upon actual experiment; but for a long time it was a puzzle to him. He did not think there was a process known which would remove soluble organic matter; and it was this which promoted the growth of the sewage fungus. He had not heard of the sewage fungus anywhere else. It improved the water up to a certain point, and then polluted it. Asked to explain the statement that other analyses showed the East London water to contain on the average 50 per cent. more organic matter than the New River, he said he did not believe it was so.

The West Middlesex Company.

The statement submitted by this company gave a history of the undertaking from the incorporation of the company in 1806, and a description of the works. The twenty-first paragraph was as follows:—

"In 1886 an agreement was made with the Thames Conservancy by which, in consideration of a further payment of 1,000*l.* per annum, they granted the company permission to take from the river a daily quantity of 4½ million gallons in addition to the 20 millions now allowed to be taken under the original agreement with the City Corporation, whose duties in this respect were afterwards transferred to the Thames Conservators."

The intake of the Company is at Hampton, from the Thames, and the water gravitates from the river to the engine wells through two 48-in. cast-iron pipes. Here are three engines and eleven boilers; the engines are capable of pumping 59,750,000 gallons in twenty-four hours. The engines pump the water into the reservoirs at Barnes, a distance of eight miles and a half, through two 36-in. mains. At Barnes there are four reservoirs capable of storing 117,500,000 gallons. The water is admitted at one end of the reservoir, and drawn off at the other, so as to allow as long a time as possible for subsidence. There is a filtering area capable of dealing with 39,000,000 gallons in twenty-four hours, taking the rate of filtration at 2½ gallons per square foot per hour. The filtered water is conveyed to the engine wells at Hammersmith by gravitation through two 36-in. cast-iron pipes laid in the bed of the river. At Hammersmith there are ten engines, with thirty-two boilers, and 35,877,280 gallons can be supplied in twenty-four hours. All these engines pump against an average head of 175 ft. during the day and 195 ft. at night. There are four service reservoirs.—Campden-hill, Kensington; Barrow-hill, by Primrose-hill; Harlesden-lane, Willesden; and Platt's-lane, Kiddespore, by Finchley-road,—with an aggregate capacity of 13,422,000 gallons. At Barrow-hill, three pumping engines, with eight boilers, raise the water to Kiddespore reservoir, and can pump 5,175,000 gallons in twenty-four hours, pumping against a maximum head of 150 ft. The works occupy over 96 acres of land, and the Company has over 7 acres of spare land.

The number of "supplies" in 1891 was 74,482, being an increase of 49,284 since 1851. The additions in periods of five years, going backwards, had been 6,702, 10,191, 9,471, 5,902, 5,885, 5,135, 2,998, and 3,000. In periods of ten years, going backwards, the additions had been 16,893 15,373, 11,020, and 5,998. The most important paragraphs in the statement are those which relate to the estimate of increased supply required in forty years' time. The directors say that, although they have always endeavoured, and with success, to anticipate and provide for the requirements of the future, they have not, until requested by the Commission, turned their attention to the question of what their policy would be at such a distant period as forty years hence. They claim indulgence "when attempting, in the short time allowed, to answer a question such as no municipal authority or board of directors would think of dealing with without much more consideration and assistance." They add that there are in the Company's district 5,820 acres outside the Metropolitan area, which may at some future time be built over; but it is considered that there is not any probability of more than half this space being covered within the next forty years. This 2,910 acres, with an average of twelve houses to an acre, would give 34,920 houses. Over the Company's district, including Marylebone and parts of St. Pancras and Paddington, the present average is 7¾ persons per house. The following is a tabular synopsis of the figures and estimates given. The estimates (*a*) are based on the

assumption that half the area outside the Metropolis will be covered in forty years. The estimates (*b*) are based on the assumption that the same increase that has taken place since 1851 will continue for the next forty years:—

	1891.	40 years.	1931.
Houses	74,482 +	34,920 =	109,402 (*a*)
	74,482 +	49,284 =	123,766 (*b*)
Population...	577,235 +	270,630 =	847,865 (*a*)
	577,235 +	381,952 =	959,187 (*b*)

Supply per head per day last year... 29 gallons.
Average, last ten years..... 27·6 ,,

Persons.		Gallons.
(*a*) 847,865 at	29 gallons =	24,588,000
,, ,,	28 ,, =	23,740,000
(*b*) 959,187 ,,	29 ,, =	27,816,433
,, ,,	28 ,, =	26,857,236

Daily quantity now authorised... 24,500,000

The directors think it not improbable that they may, by negotiation with another company, acquire a part of the unexhausted right as authorised by the Thames Conservancy Act of 1878; and, in addition, they are advised by expert engineers and other scientific authorities that a much greater quantity than that now authorised could be taken from the Thames, even at times of exceptional drought, without involving the necessity of any additional provision for storage by the companies, and without injury to any interest. The directors further think that by constructing reservoirs when required by the increased demand, double the quantity might be taken without reducing the flow of the river more than has already been done and without affecting any water level that may be thought desirable by the Thames Conservators or other authority, and the supply thus taken would be free from the objections which might be urged against water taken in times of flood. The directors are also advised that an enormous quantity can be derived from wells sunk in the chalk area, the water from which now finds its way direct to the sea, and that a large supply may also be obtained from the gravel beds.

The witnesses examined on behalf of the West Middlesex Company were Sir W. H. Wyatt, Chairman, Mr. Harvey, Mr. Wybroo, and Mr. Willis. Mr. Harvey estimated the storage capacity at 8½ days' consumption; the Chairman called it 7½ days, making certain allowances. As to organic impurity, the water was 30 per cent. better than it was in 1868. Mr. Wybroo said the number of supplies increased from 1880 to 1884, when building speculation was at its height; but since then the rate of increase had fallen, and last year it was lower than in any of ten years following 1876.

We will next week continue our report of the evidence.

Now that the question of London water supply is engaging so much attention, Mr. Edward Stanford, of Cockspur-street, Charing-Cross, has very opportunely issued a "Water Supply Map of the County of London," showing the boundry of the jurisdiction of the London County Council, and the areas supplied within the county by the various water companies, distinguishing the areas under constant supply. The map will be found very useful in following the proceedings of the Royal Commission.

THE RELATION OF THE ARCHITECT TO THE WORKMAN,

AS ILLUSTRATED BY THE WORK AND METHODS OF THE GUILD AND SCHOOL OF HANDICRAFT.*

YOU have asked me to speak to you on some subject bearing on the practical work which, as an architect, I am engaged in, and to illustrate it, if possible, by reference to the actual processes of production followed in the carrying out of this work.

So I have chosen as my title "The Relation of the Architect to the Workman," and shall try and give you a few ideas that I have sought to work upon now for some years, and such insight as I am able to upon this theme, illustrating it not so much by actual instances of work produced, as by description and explanation of the system of work that has made this production thus far possible, and would seem to tend to its further encouragement.

I shall arrange my subject broadly, therefore, under two heads, the first more theoretical, the second, inasmuch as it is intended to illustrate the first, of a more practical character, and having definite application to such materials as it would seem convenient in the course of a brief hour to touch upon.

On the threshold of my subject, I would say that this relation of the architect to the workman, the right understanding of it and its application to one's work as an artist, seems to me to be the most important part of that larger subject often called "The Relation of Architecture to Life." I suppose to most of us here, the relation of architecture to life is a question fraught with meaning in more senses than the narrow one of our own bread-and-butter; but I would challenge each one of you to put his interpretation on the question, and to ask himself what it actually means to him in the everyday humdrum of things. How he feels it; whether in the multitude of great architectural work, whether in the poverty of good building, whether in the absence of style, whether in the eclecticism of choice, whether in his dealings with clients, with builders, with workmen, or how? How as an English architect, and as a private individual?

For my part, I think the relation of architecture to life in modern times cannot but be regarded but as of the slightest. To *our* life, as architects, it means much, and always will; to our life as a nation it means little,—unfortunately for us. As a nation, we have small sympathy for, and scarce any understanding of, architecture, and what sympathy and understanding there is, is limited to a few in the profession and their supporters. As a nation, we love *show* and *vulgarity*, with its concomitant, cheapness; we love poverty of construction and its symbol, the iron girder; we love *hurry* and its resultant, the ill-considered moulding. We have not the great sympathy which could build the cathedral and forget the name of the architect; or the great power of reserve that could leave, in the consciousness of their harmonious development, the hundred details of the building to the craftsman. Architecture is no longer democratic, no longer understanded of the people: it has lost its corporate significance. As a nation, we do not love architecture; we are content to let our mouldings be struck with compasses, and our subtlest details be evolved by the office-youth; and we firmly believe, that when the assessor of the Royal Institute of British Architects has told us, or our representatives, the local committee, that this set of plans is the best we can possibly expect for the money, that it is good architecture we have got, and we thereupon proceed to what is called "merge the premium in the percentage."

I was comparing lately the conditions of some recent modern competition clauses, and the ethical frame of the English mind which these portrayed, with the document issued by the Florentines for the rebuilding of their cathedral in the year 1294. The British parallel, as it is familiar to most of you, I shall not give; the Florentine being less so, I will give you a portion of. Here is the key-note of it:—

"Since the highest mark of prudence in a people of noble origin is to proceed in the management of their affairs so that their magnanimity and wisdom may be evinced in their outward acts, we order Arnolfo, Head Master of our Commune, to make a design for the renovation of Santa Reparata in a style of magnificence which neither the industry nor the power of man can surpass, that it may harmonise with the opinion of many wise persons in this city and state, who think that this Commune should not engage in any enterprise unless its intention be to make the result correspond with that noblest sort of heart which is composed of the united will of many citizens."

It was this "united will," this "noblest sort of heart," which those old burghers felt could only be expressed by Architecture,—the mother art. It seems somewhat of a mockery to speak of Architecture as actually being the mother art nowadays. Look at the walls of the Royal Academy at this moment,—is it true? Look at Gower-street,—is it true? Look at Greater London, "the desert of London town, grey miles long," "the desert of London town, mirk miles broad,"—is it true? Look at the public-house, the restaurant, the Nonconformist chapel, the average shop, the suburban villa, the Board school, the railway junction, the pit village, the factory town, and ask again,—is it true? When that phrase was invented, building and architecture were synonymous terms; *we* draw a subtle distinction, and say with truth, Yea, those be buildings: what we wish to deal with is architecture,—the art of the Chief Builder,—*αρχι τεχτων*,—the essence of building. Possibly what we say is true in a double sense, but the truth is a bitter one.

Now, I do not say these things as a tirade at existing circumstances. Tirades are futile and unnecessary to us as practical men, but I say them in order to point at ways that, by the energy mainly of the young architect, may be bettered, and at facts existing in modern life which, if rightly understood by him, will give him the opportunity of bettering them. Having spoken therefore of the national sympathy for architecture, I now regard the architect in his relation to existing things.

To me it seems that this divorce of architecture from the national life leaves its mark on him, and injuriously. He is not, if I may say so, and using the expression in the largest sense, sufficiently educated, not sufficiently,—if one may put it in the famous term of the Italian Renaissance,—humanist. His scope and sympathies in the first place are not wide enough, and then his technical training is not sufficiently all embracing. He finds that his "profession" or "art,"—I use either word,—is only becoming recognised as one of the polite arts or professions. It does not stand by the law, or the work of the doctor, or the schoolmaster, or the many services of the State, or the University in the public eye. Its position is doubtful, and it ministers in the main to the private comfort of wealthy men, not to the common heart of a great people.

As regards his method of work, he feels himself but a link in the productive chain. He sits in his office and makes designs, and he has a connexion through specifications with contractors who carry them out; and he frequently anathematises a man of straw, who is known to him under the name of "The British Working-man," when they are not carried out properly. My contention is, therefore, that the architect as yet is not sufficiently educated in his relation to the "body social." It is, perhaps, unfair to say that he is (in a non-political sense) too conservative, but he has not that wide training in life which should make him sympathise with the greater movements of his time. His training is a narrow one, in the four walls of an office. He does not touch life directly, as the doctor or the clergyman; he does not get glimpses into men and manners like the lawyer.

Here, then, we ask ourselves, If this be true, how can it be best remedied? And we are brought face to face with the question of the relation of the architect and the workman. The architect has to understand his position *as* a workman in relation to other workmen; more than this, he has to feel his responsibilities in organising and directing their work; and more than that still, he should feel some direct responsibilities likewise in training and educating them. Thus only will he deserve his title as architect or chief builder.

I will return to the consideration of this directly in detail, staying for a moment to consider the question in its bearing on a question very dear to all of us,—*style*, the language of architecture. The architects of the later nineteenth century have settled the question of style; they have almost ceased to dogmatise; the Battle of the Styles has been fought out, and a rough-and-ready compromise has been made between eclecticism and originality. That is style in its external sense; but I believe we have gone deeper: the inner question of the origin of style is what we have now to solve. The origin of style lies not in the theories, not in the forms, of art, but in the social relations of men to men, in their state of society, in their habitude to one another, in the leisure they may have for the thinking out of problems and the creation of forms. In short, the origin of style is a social, not an artistic question. The question of style, therefore, is solving itself for the young architect, and will do so more and more as he grasps his relationship to the workman and the body social.

I repeat, then, that the young architect has to feel that he is a workman in a privileged position, in the position of giving other workmen their line of work. He is to be the "chief master of our Commune;" to fulfil this high function rightly he must come into close and direct relationship with his fellows in every possible way.

Barry, I believe, once suggested that it would be a good thing for an architect with capital to invest it in building operations, and such work as might be in connexion with architecture. That suggestion was a very wise and far-seeing one. Barry's age was, perhaps, not fully ready

* A paper read on the 27th ult. before the Architectural Association by Mr. C. R. Ashbee, M.A., as elsewhere mentioned.

for it, but it has been and is being at the present day acted upon by architects in various ways. Regarding capital as the force that binds workmen together, regarding also the other great cohesive forces which were undiscernible to Barry,—the workmen's movements, &c., which are tending to a reconstruction of industry at the present day; regarding also the advisability, nay, necessity, of commencing (especially for the young architect) in the *ministering arts, the crafts*, in other words, rather than in the mother art direct; and regarding in the last instance the necessity of the frank recognition of the architect's connexion with industry, Barry's suggestion, which implies the closer union of the architect to the body social, we might all set before us.

But I would give this suggestion more definiteness, and at the same time limit it. I would like to see applied to it the system of the old Craft Guild; or such conditions as were possible of a society that produced the greatest architecture of all time. In this society we find the right relation,—a more human relation between the architect and the workman.

Now, it seems to me that there are three ways in which we are approximating to what was good in the old system. Three phases of modern developments which it behoves especially us younger men to study, and which all of them comprehend,—this better relation of architect and workman upon which I would seek to fix your attention to-night. These three things I might term "Craft-Guild, Potentialities," and they may be distinguished as follows: There is—

1. The existing connexion of architects with trade for artistic purposes.

2. The workmen's movements that are daily convulsing industry.

3. The educational movement that is making progress with rapid strides.

I will take them in order.

First of all, the existing connexion of architects with trade for artistic purposes,—the architect and the shop, let us call it. In the relation of the architect to tradesmen we see these guild potentialities. We see it among the men employed by some of the leading architects,—his builders, his furniture makers, his painters, and so forth. I will put it plainer. In some cases the architect is in a position in which he can place his building with a particular builder with whom he has worked for years; or, if the contract is to be competed for, he can limit it to some three or four of those who have worked for him and whom he can trust. In this the guild element enters. In some cases an architect, or group of architects, support a business in which stuffs, or furniture, or materials are produced specially from their designs, and to serve the purpose of their buildings. I use the word *support* advisedly, for, if their work is conscientiously done, more money of theirs goes into these businesses than ever comes out of them. Here, again, the guild element enters. In some cases, again, the leading architects attract round them various small workmen,—painters, carvers, sculptors, ironworkers,—men of some special ability, whom they have met with in the course of their professional experience, and to whom they continue to give small jobs in one or other of their works. Here, above all, the guild element enters because of the educational element, and because there is a constant and direct relationship between the employing architect and the producing craftsman.

Now, it seems to me that we younger men have to take up this side of the professional tradition, one might almost call it, and develope it. Here is a portion of our heritage that is worth having; in this there lies a future.

We should get into closer touch with our builders, our carvers, our decorators. We should welcome, instead of glancing at them with the eye of false shame, the efforts of architects to work through the ordinary distributive agencies of the shop; and, above all, we should unite to us a body of men,—young men, if possible,—who are capable of ministering to the various crafts dependent upon architecture.

The step from this to the completed Craft Guild is a social one, and one that time must bring. The atoms at present are distributed, but the personality of the architect should unite them. Their interests, at present, are discordant. A loses what B gains; the architect has it in his power to make them harmonious by uniting them with him. Their training at present is incomplete, and each, if left to himself, would ruin the ensemble; the architect, as having the grasp of the whole, has it in his power to teach, and to so give each his place that left to himself he shall be trusted to understand his own limitation. I am a painter, and must feel the relation of these reds to the whole scheme of colour; I am a joiner, and must understand that this panelling must range with the architectural treatment of the frieze and cornice; and so forth.

I should be as opposed as any man to the idea that the architect should be connected in any way with trade or with dealing, or should receive any remuneration other than that professionally established for professional services, or for purely artistic work of his own hands in connexion with it; but inasmuch as the architect's work is productive, so he should be in immediate touch with production: but I hold that an architect should have a workshop at his back and come into constant relation with a body of men in various crafts educated with and by him.

2.—Then we come to the next point,—the workmen's movements,—the great underlying questions of the development of industry, its reorganisation, the evolution of co-operation and co-operative societies,—(a purely Mediæval repetition in many respects). These things the young architect should study, and should learn to make use of and not to shun.

The real interests of the day are, and probably will be for the next decade or so, social: not political, not artistic, not directly educational. I hold it the duty of the young architect, if he wishes to get more into touch with life, to learn to take an intelligent interest in these workmen's movements. The knowledge or interest of the architect in them at present is often limited to the "strike clause" in the contract. I know it is the opinion of many artists, professional men of standing, that the art may take care of itself, that social questions and ethics have no place whatever in art; and they accept the teaching of what may be called the reaction,—an inevitable one,—to the doctrines of John Ruskin. They hold that all the architect should care about is the final work produced. Does it or does it not conform to his design,—no matter how it has been produced? This may be right enough for the landscape painter or the artistic antiquarian, but I hold it to be absolutely and fundamentally false for the architect. I insist that the architect is in the position of the highest producer, and so should he bear the responsibility of the highest production.

He should study it, get to see its bearing on his work and those that work under him; he should seek to unite them co-operatively as producers, and without middlemen between them and him. There is nothing so painfully instructive to one as reading the habitual tone of scornful unsympathy expressed by the leading building papers whenever a question relating to workmen's movements, strikes, and industrial struggles come forward. These papers, presumably, express professional opinion, but they are unreservedly biassed in favour of the employer as against the employed. It is for the young architect to study better these relations of capital and labour. If he does, he will see that there is no real antagonism between capital and labour: that the apparent antagonism of the present day is in the first instance, one in the *degree of remuneration for services;* in the second instance, in the *degree of control* between master and men.

3. Now to my last factor in modern movements, to which also lie guild potentialities,—the educational developments. The old apprenticeship system is dying out. It still remains in a somewhat unsatisfactory condition in architecture; and in such crafts as bookbinding, that have in them some of the old-world element undestroyed by the machine, where the hand still holds, and which have not yet quite sunk into the slough of industrial despond; but for the most part it is finished. Side by side with it we see a new growth,—the technical school, which is even offering to take its place.

But the technical school never has taken and never can take its place. The technical school must be either a combination of primary education, as in the case of the Welsh intermediate schools, and so aim at the more harmonious education of the child; or be a continuation of the work in life, as is the case with such classes at polytechnics and technical institutes which seek something other than merely to "gild the leisure of the clerk." It can never, as far as we can at present see, teach the actual trade itself as an apprentice should learn it; and certainly, according to the Technical Education Act, it may not even profess to teach it.

Edward Bellamy, in his "Looking Backward," made the trenchant statement that, in the new state, a new force must take the place of the "master's eye" of the old trade system. This new force was "the perfectness of the organisation." I would accept this entirely, insisting only that perfectness of organisation comprises "humanism."

Now, with the apprenticeship system dying, with the technical schools admittedly not fulfilling requiring conditions, and with the organisation of industry imperfect, what is the educational outlook, as far as the architect is concerned? We have, it seems to me, to recognise that the apprenticeship system, regarded educationally, has been destroyed by subdivision of labour, and it is this subdivision of labour that we architects have to grapple with, and that we, by virtue of our position, can be of service in. We must help in the educational side of that re-organisation of industry that is taking its place, not only in our own immediate art, but in all the handicrafts subordinate.

I would urge you all to consider how far it is not within the scope of the profession, by entering more into the study of the crafts, by approaching more the men in their movements, by working more in workshops and less in offices, to supply somewhat that which is wanted educationally, to enter into this educational movement in its humanist and its technical side which we see going on on all hands. You yourselves are entering into it in a most excellent manner at the Architectural Association; it is being taken up by the County Councils in most parts of the kingdom; and it may be said to be living, from the Universities down to the Board Schools. We architects should take it up for the future of the profession and all that depends on it.

I have now indicated the three main lines in which it would seem to me that in dealing with the question of the relation of the architect to the workman we younger men, having in mind the greater and more comprehensive development of the profession, have to look,—its development, in fact, more in conformity with the ways and methods of the Mediæval guild. Let me now sum up the position of the architect as I conceive it should be, in his relation to the workman,—an architect's ideal, if I may be allowed the term.

We should, in the first place, then, regard ourselves more as workmen on whom fall the duties of production and of organisation, and less as gentlemen of the office. As far as our own training goes, we should draw as little as possible, but with our hands work as much as possible; or, rather, I should say, we should seek to express our detail designs as much as possible *in actual material* and not on paper,—that is to say, in the workshop. Working thus in the workshop, we should grow into the sympathies of the workshop, and then seek to develope our position as organisers and employers of industry. We should train up a body of men with us; it is only by educating workmen in architectural principles, and ourselves in the relation of the handicrafts to our work, that style,—real living style,—not the shell of it in a modern Gothic church or Queen Anne mansion,—can come. At present we act as a disintegrating force, and tend to keep the craftsmen asunder. We have sense enough to see that we can get better work from them when they act as units than when they are under the control of a contractor or a big firm. It should be our effort to secure the advantages of freedom and spontaneity of work which a guild system would give without losing those advantages of business method and order which the present system ensures. We ought, in fact, not to use a good craftsman as an artistic convenience, as we are tempted to do at present; but we should hold him, bind him to us,—as it were, take him into partnership with us,—and so take more responsibility for the *man* and less responsibility for the *work*. By so doing we shall avoid that waste which at the present day always tends to convert the good craftsman into the bad employer of labour. The architect, more than any other person, has the blame of this; the architect, more than any other, ought to strive to prevent it.

It is not for me to pretend to lay down any

system that shall even pretend to meet those difficulties, I merely say that some efforts at reorganising of industry, in so far as it affects architecture, on the principles of the Craft Guild, seem to me to be the right ones; and that the ideas which I have endeavoured to set before you contain the main principles that have guided my own creative work in the Guild and School of Handicraft since I took my degree and served my apprenticeship. I will now give you, in a few words, the method and system of the creative and educational work of the Guild and School, in which, if nothing else has been done, at least we have made an attempt to establish a more healthy relation between the workman and the architect.

That closes the more theoretical part of my subject, and I should now like to sketch out for you, in a few words, what the ways and methods of the Guild and School of Handicraft are. You must understand that this Guild and School is not a thing that has been suddenly created in a doctrinaire manner. It has grown up in a perfectly harmonious and gradual way in the course of a short period of time,—five years, though. But its growth claims to be spontaneous. It was not pre-conceived as a system, and then established in the manner that Rousseau and reformers of his type would seek to establish a thing; but it has grown up by two or three men coming to work and read together, and then, feeling that they had to make their work a little more practical, taking up work with their hands. That has led to the establishment of the *School* on the one hand, and the *Guild* or workshop on the other. The Guild and School, therefore, has two distinct parts: first it is a productive workshop, conducted on the lines of an industrial partnership, in the same way as some of the northern co-operative societies are conducted,—such, for instance, as the Woodhouse Mills in Huddersfield; secondly, it is a school in which are trained workmen,—men and boys,—who are still at work at home. We also train elementary teachers in various forms of handicraft. We therefore consider that we have two lines of teaching going on in the school: one where the young artisan is taught, and the other where the elementary teacher is taught,—that is, the teacher who is going to teach the artisan of the future. Of course, the school is and always must remain a small concern, and we regard it as a hunting-ground for our future artisans. We entirely disapprove of the sale of anything in the nature of school-work. We consider that that is wrong. It is, I know, being done all over the country. But we hold that no school-work must be sold; that the school is educational, and must not be regarded as directly productive in any sense whatever. The result is, we give vigour to our workshop. It is in the workshop where the Guild is established, and it is in the workshop where we carry on the training of the apprentice when he passes out of the school. When he is bound apprentice he is bound to the society as a corporate body. He is taught his trade, or craft, in the production of work of which I have brought a few specimens for you this evening. I have not been able to bring any specimens of work which bear more particularly upon architecture, because one cannot bring in a cab, panelling of rooms, or other large and important pieces of work relating to building. I have brought some specimens of leather work; one little specimen of woodwork treated with *gesso;* some specimens of hammered copper, specimens of hammered gold and silver work, castings, metal-turning, hammered hollow-ware, &c. There are also two printed volumes: one, the Transactions of the Guild and School, which contain addresses by many eminent artists, delivered at our workshop, and taken down by a reporter and thus preserved; the other is the Manual of the Guild and School of Handicraft, published three days ago, which contains the latest expression of our work. I have brought copies of each of these books, and I should like to be allowed to present them to the Association. As regards the way in which we work, however, the Guild has as yet no place where it exhibits or displays its things, and the reason is that the workmen of the Guild are anxious, in the way I have mentioned in the theoretical part of my paper, to work with architects. Therefore, the bulk of the work which is done there is done in connexion with architects, who come and visit the workshop and talk with the men. Of course, most of my own work goes there, and it is always a delight for me to see the whole thing, from top to bottom, if I can possibly manage it, passing through the Guild workshop, because one feels that one has there men whom one has trained up into an understanding of their craft and of the right treatment of materials. Therefore, there is always going on a good deal of work which is either architectural work or work for architects. As regards the place itself, I can only say that I hope you will come and pay it a visit, and see it for yourselves. We have got an old eighteenth-century house, built by Gibbs, that we have had our eye upon for many years. It was formerly in a park by itself, but it is now built round, although it has a nice garden at the back. We have laid out a lawn and have built our workshops along the lawn; there is thus always a pleasant outlook, and the work is, therefore, done under better conditions than usually prevail in a London workshop. I shall now be very happy to answer any questions which you may care to put to me about any of the processes in detail, but I refrain from going into a practical description of these processes for fear of wearying you with technicalities. In conclusion, I would only repeat my invitation to you to come and see the place for yourselves, and not only I, but all my colleagues, will be only too happy to welcome you.

[An interesting discussion ensued, the speakers being Messrs. H. O. Cresswell, Leonard Stokes, Sidney Vacher, E. W. Mountford, A. E. Bartlett, Sidney Tugwell, and the Chairman, and Mr. Ashbee replied to some of the points raised. We are obliged to defer our report of the discussion until next week.]

THE LONDON COUNTY COUNCIL.

The "Rate of Wages and Hours Clause" in Contracts.—A special meeting of this Council was held on Friday, the 27th ult., to consider this subject, which was adjourned from the previous meeting of the Council, as mentioned by us last week. The following motion, it will be remembered, had been moved by Mr. John Burns:—

"That all contractors be compelled to sign a declaration that they pay the trades union rates of wages, and observe the hours of labour and conditions recognised by the London trades unions, and that the hours and wages be inserted in and form part of the contract by way of schedule, and that penalties be enforced for any breach of agreement."

Mr. Beachcroft asked whether counsel's opinion had been taken as to the legality of the stipulations proposed, in the event of the motion, or its substance, being carried.

The Chairman (Lord Rosebery), in reply, said that the questions had been submitted to an eminent counsel, Mr. Meadows White, Q.C., who had given an opinion, in which he said:—

"I may say generally that I do not see anything in stipulations defining the *minimum* of wages or the *maximum* of hours which would be held contrary to law or so far opposed to public policy as to be illegal. . . . This case is, I think, without precedent. The subject is therefore not free from doubt, but I am of opinion, on the whole, that a clause could be framed so as to secure the right to liquidated damages for breach of such stipulations. . . . I should advise that liquidated damages should be specially stipulated for in each case, and that it would not be prudent to rely on a general stipulation applicable to all the stipulations in the contract. There would be nothing contrary to law in a stipulation entitling the Council in the event of breach to determine the contract, but, of course, such a stipulation would be subject to the usual incidents of forfeiture clauses, and I think that a provision that the Council might themselves pay to workmen underpaid or not paid according to the terms of the stipulation and recover or deduct the amount would be valid. . . . It would avoid many difficulties if a schedule of wages could be agreed upon, framed on the proposed principle, or that reference could be made to some authority or existing scale of wages, rather than to leave the language indefinite."

Sir Thomas Farrer moved, as an amendment to the motion, to omit the word "London," and to insert after the words "trades unions," the words, "in the place or places where the contract is to be executed." He said as Mr. Burns's motion stood, and according to the construction put upon it, there could be no doubt that they would be compelled to apply London trade union rates and rules to the country contracts. That seemed to him to be a most objectionable thing to do. Mr. Burns proposed by his resolution to prevent Londoners getting the benefit of the cheaper labour in the country. Another important aspect of the question was that the adoption of the resolution would keep country contractors from tendering. That meant they were going to exclude country contractors and country workmen from London work. (Mr. Burns: Why not?) Because it would be setting one class of workmen against another.

Lord Monkswell pointed out the impracticability of London rates and conditions of labour being imposed all over the country. The contractor would rather let his men work in the country, and they in London did not wish them to crowd up London. Many people would be put to great inconvenience for no reason. He also objected because the local workmen who might still be employed outside London would be made into a privileged class who would receive higher wages than their fellow workmen working for the local needs only.

After a long discussion, in the course of which Mr. Burns's motion was strongly supported by Mr. Martineau, Chairman of the Asylums Committee, and other speakers, on the ground that it would result in good work and so be productive of true economy, the amendment was carried by a majority of 10, sixty voting for it and fifty against.

Mr. Costelloe and Mr. H. P. Harris moved further amendments, which were negatived, and eventually Mr. Burns's motion as amended was agreed to, and it was resolved that it should be referred to a Special Committee to consider how best to give effect to the resolution. It was also agreed to refer the following proposed additions to the resolution standing in the name of Mr. Stockbridge on the agenda paper, viz.:—

(1.) Should any workman in the employment of the contractor be not paid the schedule wages then the Council shall be at liberty to deduct from the money payable to the contractor under the contract a sum equal to double the amount of such deficiency, and the Council shall be at liberty out of such sums so deducted, to pay the contractor's workmen any deficiency in their proper wages, for the whole of the past term of the contract.

2. The contractor shall undertake to keep proper time books and wages books in connexion with the contract work, and such books shall at all times be open to the inspection of such person or persons as may be appointed by the Council for this purpose, and the contractor shall, under a penalty, be bound to make and deliver to the Council, whenever required, a declaration that the hours and wages set out in the time and wages books are correct, and that he has paid the several sums charged therein.

Mr. Leon had given notice to add to the resolution the words:—

"But London rates of wages shall be paid by every contractor to all workmen employed on any London County Council work within twenty miles of London."

He asked that these words should also be referred to the committee, and the suggestion was adopted.

The Council then adjourned.

At the ordinary weekly meeting of the Council on Tuesday last, Lord Rosebery presiding, there was little business of special interest to our readers, except the nomination of the Special Committee on Contracts to consider the foregoing matter. It was resolved that the following members should constitute the Committee, viz., Messrs. Hood Barrs, Branch, Burns, C. Harrison, Lyon, Roberts, and H. R. Taylor.

After transacting other business, the Council adjourned over the Whitsun recess.

BUILDERS' BENEVOLENT INSTITUTION:

ELECTION OF PENSIONERS.

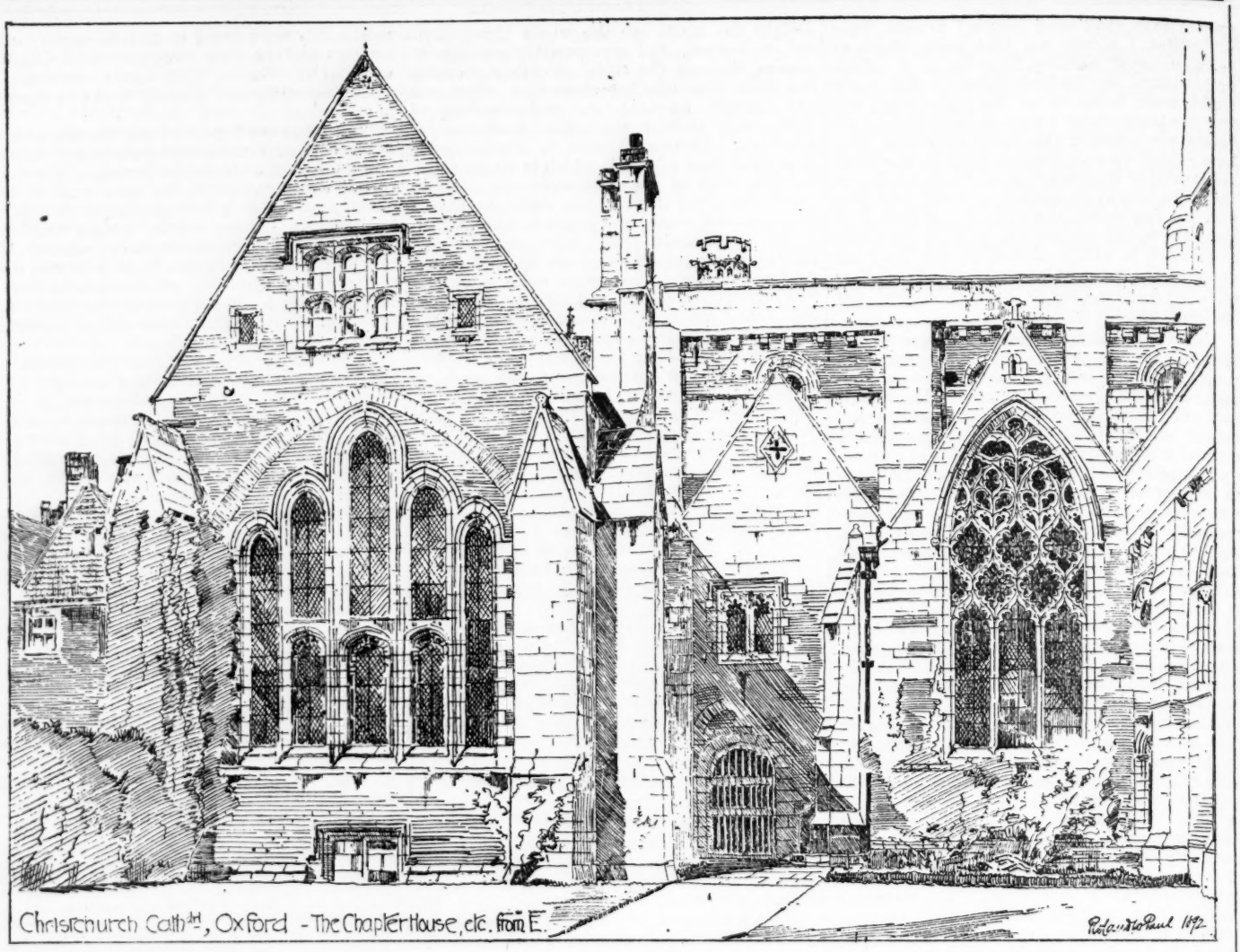
THE seventy-sixth election of pensioners in connexion with this Institution took place on Thursday, the 26th ult., Mr. B. E. Nightingale, President, in the chair.

There were six candidates,—two men and four women,—and there were vacancies for one man and one woman.

The successful candidates were William Rowland, 579 votes, first application; and Margaret A. Richardson, 3,626 votes, being her seventh application.

Votes of thanks were given to the scrutineers (Messrs. T. Stirling and T. F. Rider), and to the President, and the meeting terminated.

DISSOLUTION OF PARTNERSHIP.—Messrs. Tolley & Son, architects and surveyors, 86, Cannon-street, inform us that they have dissolved partnership by mutual consent as from March 25 last. Mr. Tolley retires from practice, and Mr. James Tolley, jun., will carry on the business under the old style of "Tolley & Son." Mr. Tolley retains his appointment as District Surveyor for Sydenham.



Illustrations.

OXFORD CATHEDRAL.*

SERVING both as the Cathedral of the diocese and as the Chapel of the College, Christchurch Cathedral holds a unique position amongst our episcopal buildings. The changes it has undergone since its foundation have each left their mark on the fabric, lend a large amount of interest to its plan and detail, and give a fairly clear record of its gradual development from early times to the present.

In dimensions, it is the smallest of our cathedrals, its total internal length, with the modern bay added to the nave, being but 175 ft. Its position, too, well set back from all the principal approaches, and much hidden by the great buildings of Wolsey's College, deprive it of that importance and dignity which is generally associated with a cathedral-church. But it possesses a picturesqueness quite its own, and the peculiar form which the plan takes east of the crossing is a point of great interest,—an interest which is increased in the light of recent discoveries. With the exception of the west walk of the cloister and three western bays of the nave, the church remains much as it was at the Dissolution. The monastic buildings have necessarily fared worse, as they were, with the exception of the refectory and the Chapter-house, destroyed to make room for Wolsey's new works.

Founded originally in the beginning of the eighth century by King Didan, and existing as a nunnery under his daughter, Frideswide, it was, three centuries after, converted into a monastery of Secular Canons, and later of Canons Regular of St. Augustine, and so remained until the sixteenth century, when Cardinal Wolsey obtained its suppression, for the purpose of founding the college which was to bear his name, and which is now represented chiefly by his alterations to the Cathedral, and the great "Tom" Quad, with its hall and unfinished cloisters, standing between the Cathedral and the present main street. The peculiarities of plan, and the curious mixture of detail, have afforded, and still afford, much matter for discussion and research, although of late something has been done which tends to clear up the mystery which enveloped the north-eastern portion of the church. The original church of Didan and his daughter, afterwards Saint, Frideswide, was doubtless a humble structure, and, if not of wood, was of small dimensions. At the commencement of the eleventh century the nuns of St. Frideswide were massacred and the church burnt; and afterwards additions were commenced by King Ethelred II. About 1120 further additions were made by Prior Guimond, and the consecration took place sixty years afterwards (1180). In these cases it was probably the endeavour, so far as was possible, to keep the original church, sanctified as it had become by the presence of St. Frideswide's burial, as an integral part of the structure, and it is this point which makes the ground plan at the present time one of so much peculiarity and interest.

The church now comprises a nave of four bays with aisles (and a modern bay or vestibule westward), a central tower, a north transept of three bays with a western aisle, a south transept of two bays, and an eastern chapel dedicated to St. Lucy, and a choir of four, the central alley of the presbytery being carried one bay beyond. On the north side of the north choir aisle are two aisles of later date, the first being the Lady Chapel, of thirteenth-century date, and the outer, or north, aisle, known as St. Katharine's, or the Latin Chapel. Both these aisles occupy in their western bays the site of the eastern aisle of the choir. It should be noted that, although the nave and south transept are at right angles, the eastern arm bends to the north, and the north transept, being at right angles with the choir, turns a little westward. The projecting portion of the presbytery is not in line with the rest, turning a little more to the north.

In 1887 Mr. J. Park Harrison, to whom we are indebted for much information with regard to the discoveries, had excavations made outside the east wall of the north choir aisle and Lady Chapel. The result was the finding of foundations of three apses, in all probability forming the eastern termination of the Early church which Didan founded. It will be noticed on reference to the plan that these foundations coincide with two rough arches which still exist in the east wall of the aisles, and there are distinct traces of a central arch now nearly covered by the Norman buttress. How far this wall is ancient is difficult to say. At first sight it appears early, and the fact of the new Norman choir having been built south of what was the south aisle of the Saxon church, seems to point to the fact that it was intended to keep the original building temporarily at least. There is no reason, however, to suppose that the Norman design was not completed. The vaulting shafts of the north aisle still remain, and also the angle of this aisle with the east aisle of the north transept. In addition to this a chapel was thrown out eastward from the northernmost bay of the east transept aisle, and it is quite possible that the north aisle of the Saxon church might have been retained, occupying as it would the space immediately north of the north aisle of the choir. Whether or not this was the case, any of the original building which might have been standing was swept away in the thirteenth century.

And it is here that we find the first evidence of something unusual in the plan. The two eastern bays of the Lady Chapel are 2 ft. wider than the others. At first sight this is apparently Decorated work, but on closer examination it will be found that the vaulting shafts including the one at the north-east angle are Early English. Bearing in mind that this aisle stood on the site of the Saxon church in which St. Frideswide was buried, it is not impossible that this widening was necessary to increase the accommodation for worhippers at the shrine of St. Frideswide. It so happens that the foundation-wall of this addition would be clear of the older foundation of the Saxon building, the early foundations not being considered strong enough to bear the newer and heavier load. This addition was the Lady Chapel, and occupied a similar position to the "Elder Lady Chapel" at Bristol, which was also an Augustinian house.

The next alteration was in the fourteenth century, when the chapel at the north-east

* This series of illustrations of the Cathedrals of England and Wales was begun in our issue of January 3, 1891. A list of those already illustrated, with particulars of future arrangements, will be found on page 450.

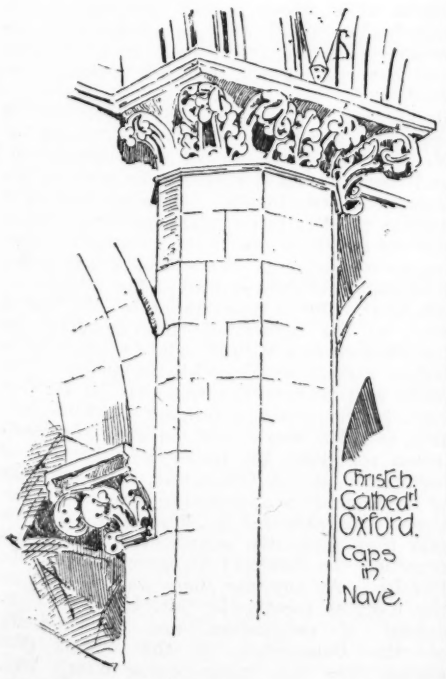
angle of the transept was removed, the north wall of the Lady Chapel opened out, and a very beautiful chapel was erected of equal length with the Lady Chapel, and now known as St. Katharine's or the Latin Chapel. About this time also the eastern termination of the chapel on the east side of the south transept was removed and a large three-light window,—with tracery of somewhat similar design to those at Dorchester Abbey,—was added. This chapel is known as St. Lucy's Chapel, and is now the baptistery, with a modern font.

The south transept is of three bays, as the north; the southernmost bay, however, is of two stories, the lower being formed by the slype which leads from the cloister to the cemetery eastward, and the upper being a gallery approached by a stair from the inside of the transept which was formerly a communication between the church and the dormitory. The same arrangement, in a slightly modified form, exists at Bristol, but there the Chapter-house immediately adjoins the transept and there is no slype.

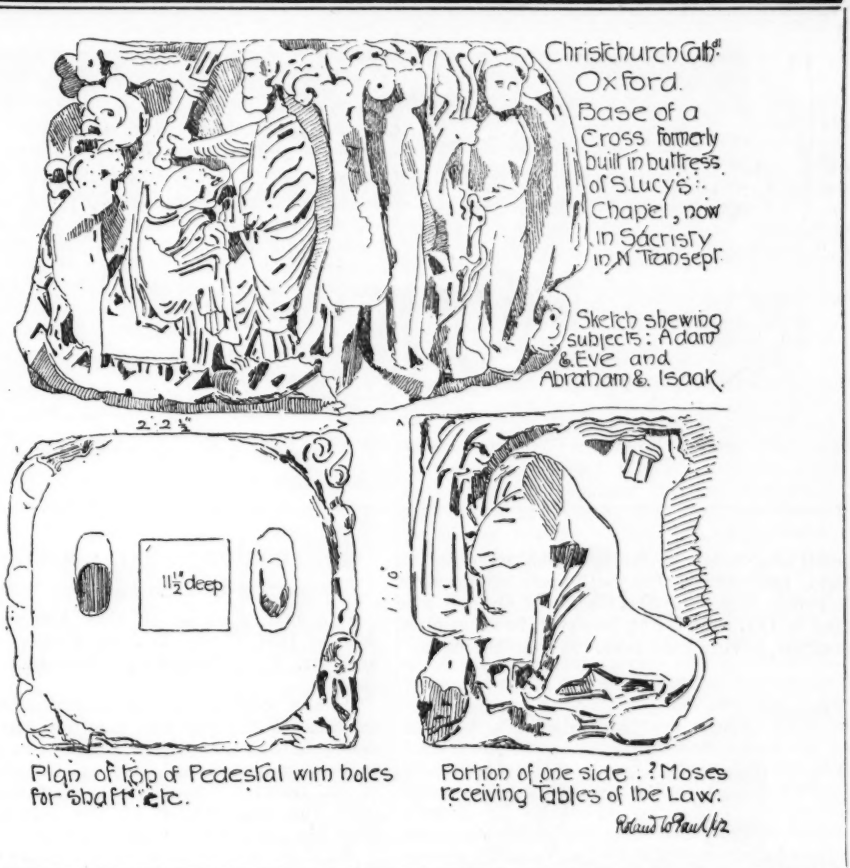
With the exception of the rich pendant roof of the choir and Presbytery, the additions made in Perpendicular times were chiefly confined to the insertion of windows and doors, and the rebuilding of the Cloister Court. The outer wall of the north nave aisle appears to have been rebuilt at this time, and the vaulting here is in cement, and a bad imitation of earlier work.

The general character of the interior is one of simplicity. Only the aisles and the choir are vaulted. The nave, transepts, and tower have wood ceilings of late date. The peculiar arrangement of the arcades,—the caps being at two levels, carrying an upper and a lower series of arches,—will be best understood by reference to the view of the interior of the transept (see lithograph). The caps themselves vary much in character, the earlier ones being in the choir, with some curious carving, resembling Saxon ornament, while those in the nave are more fully developed, bordering on Early English foliage. It is thought that some of

Christchurch Cathedral Oxford - Cap in Choir.



these Early caps are portions of Ethelred's church. They are more worn, and have the appearance of having belonged to a building that had been ruined and exposed to the weather, and afterwards incorporated in a larger scheme. The whole series of these caps, from east to west, form a very interesting study of the progress of carving. The view across the transept which we give shows some of these caps.


Christchurch Cath.l Oxford.
Base of a Cross formerly built in buttress of S Lucy's Chapel, now in Sacristy in N Transept
Sketch shewing subjects: Adam & Eve and Abraham & Isaak.
2·2½"
1½" deep
1'·10"
Plan of top of Pedestal with holes for shaft. etc.
Portion of one side. ? Moses receiving Tables of the Law.
Roland To Paul 1/2

The most important of the monuments are all in the north-eastern portion of the church, standing in close proximity to the shrine of St. Frideswide. The most interesting objects here now are the remains of the shrine itself. Some fragments of what appears to be Forest marble, with delicate carving, were found, forming the sides of a well in the yard south-west of the Cathedral, and they have been set up under the easternmost arch between the Lady Chapel and the north choir aisle, stone having been used to fill in the missing parts. A portion of the plinth formed a step with the carved portion turned inwards, and another was found built in a chimney in "Tom" quad. This interesting piece of work is probably the shrine which was in course of construction in 1270, and to which St. Frideswide's relics were removed in 1289. It measures 7 ft. in length by 3 ft. 6 in. in breadth, and consists of an arcade of two arches at the sides, and one at each end. There was no vaulting inside, the arch moulds being repeated on the inner face, and mitreing with a slightly projecting cornice moulding which served as a ledge in which the upper part of the structure, containing the shrine proper, was fixed. The spandrels throughout are filled with very beautifully carved foliage—the carving being very naturalistic, and suggesting a later date than is ascribed to it. The plants represented are: on the south side, the greater celandine, maple, and columbine; on the north side, ivy, oak, and sycamore; at the east end, vine and fig; and at the west end, white thorn and bryony.* It should be noticed that the foliage at the angles takes the form of pastoral staves, either by accident or design. The intermediate spandrels on the north and south sides are circular in form, with heads in the centre. A large portion of the plinth has been found, showing a series of quatrefoils with heads of queens on the south side, and at the west end, that of a bishop. Very delicate foliage is worked on a little roll moulding at the angle, and foliage instead of a head occupies the centre and end panels on the longer sides. Much of course is still missing, and considering that the fragments already found came from places some distance apart, it is difficult to organise a search in any one particular part of the fabric with any hope of finding more. After the shrine the most interesting monuments are those arranged under the arcade between the Lady Chapel and St. Katharine's Chapel. Under the east arch is a large stone tomb richly panelled, with a staircase at its western end leading to an upper chapel or loft, constructed of wood, and of later date than the tomb. It is supposed by some to have been a watching-chamber to guard the shrine of the saint, as at St. Albans, but at present there is no satisfactory evidence as to where the shrine itself stood, and it seems more likely that the loft was used as a chantry chapel in connexion with the tomb below. In the next bay westward, is the beautiful tomb of Elizabeth, Lady Montacute, who died in 1359, and who gave Christchurch Meadow to the Priory for the founding of a chantry. The effigy itself is a very fine piece of workmanship, the ornament on the dress being rendered in *gesso* and coloured. On each side of the tomb are six standing figures, which are excellent examples of the costume of the period, and which will be found, as well as the principal effigies, finely engraved in Hollis's "Monumental Effigies."

The next tomb westward is that of Prior Alexander de Sutton, 1294-1316. The effigy of Purbeck lies under a canopy composed of three gables supported on shafts of Purbeck. There were formerly figures at the angles, but only one,—at the north-west angle,—remains at all complete, and still has a little of its original colour. A tomb, with the recumbent effigy of a knight,—said to be Sir George Nowers, a companion of the Black Prince, occupies the next bay, which is actually the old eastern aisle of the transept. These two last-mentioned monuments were shown in a sketch given in *Builder*, August 9, 1890, in our account of Oxford, and also some of the caps from Prior Sutton's tomb. In the floor of the Lady Chapel are several stones of interest. Two contain brasses,—one to John Fitzalan, 1452, and another to Edward, son of Hugh Courtenay. Immediately south of Lady Montacute's monument is a stone with a large cross in the centre, and the following remains of a marginal inscription in Lombardic characters:—

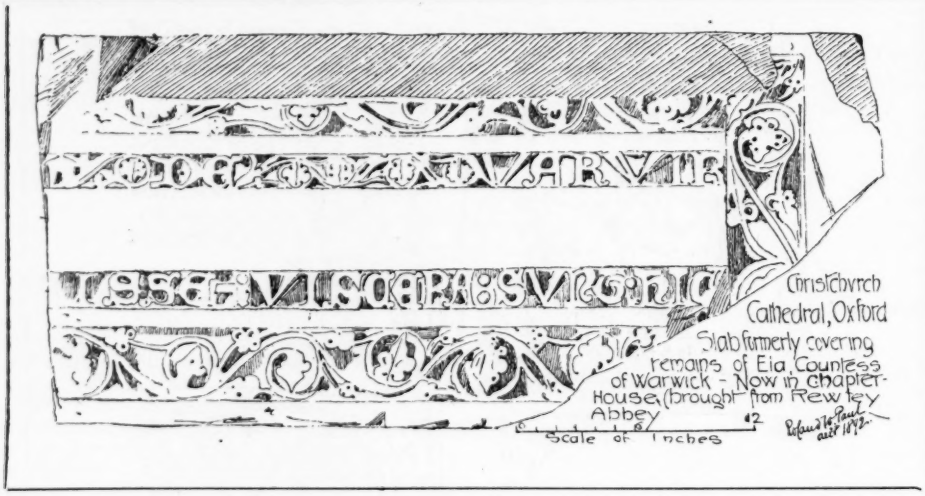
JOHAN : DE : COL . . V . LE : GIST : ICI : DIEV : (illegible) MCCC (or MERCI) . POVR : LAME PRIER : DIS : JOVRS : DE : PARDON : AVER : AMEN.

In the adjoining north aisle of the choir is a stone commemorating, "Andreas de Soltre Quondam rector Ecclesiæ de Kalleyn."

In this aisle is also a fine brass to James Coorthoppe, Canon of Christchurch 1546, and Dean of Peterborough, who died in 1557.

Under the north window of the transept is a

* The names of the plants are given in an appendix to two sermons by the Very Rev H. Liddell (late) Dean of Chichester, as identified by Mr. Druce, of Oxford.



small altar tomb to James Zouch, who died in 1503, and near St. Lucy's Chapel, a monument to Bishop King, the first Bishop of Oxford, who died in 1557. It is not, however, in its original position, having been removed from the choir.

In the Latin Chapel are some stalls, *temp.* Wolsey, and probably forming part of his choir fittings. The poppy-heads are very elaborate. We give two, showing the way the Cardinal's hat and tassels were worked into the design. The windows of the Latin Chapel are shown in the view of the exterior, with their flowing tracery. Some of the glass is of the same date, and includes figures of SS. Frideswide, Margaret, and Catherine, Etheldreda (?) and the Virgin and Child. In the borders are various animals, monkeys being introduced both here and in the glass now in St. Lucy's Chapel. This latter is a fine example of reticulated tracery with elaborate cusping. The glass, too, is interesting, of early fourteenth-century date, and including representations of St. Cuthbert (with St. Oswald's head), St. Blaze, St. Martin (giving his cloak to a poor man at the gate of Amiens), the murder of Beckett, and St. Augustine preaching to his clerics.

The upper floor over the slype, which forms a portion of the south transept, as before mentioned, is now used as a small museum, and contains several specimens of early stonework and carving, found from time to time. Amongst these is the base of a cross with sockets, central shaft, and two side brackets for figures. (See illustration on page 441).

In the Chapter-house, which is a fine specimen of Early English work, is some interesting old glass, of Wolsey's time and later. The entrance to the Chapter-house is Norman, and just within, lying on a stone bench, is the slab which covered the remains of Ela, wife of Thomas de Newburgh, Earl of Warwick, and daughter of William Longspée. It was brought here from Rewley Abbey, and is an interesting specimen of its date (thirteenth century). The cloisters have been extensively restored. All the vaulting is modern except that in the south walk and the two southern bays of the east walk. There are some foundations, evidently of some important building, still visible in the garth. They would seem, however, to have no connexion with any of the portions now in existence. The interior of the Cathedral has been restored, and new choir fittings and a reredos put up. The pulpit is a fine specimen of Jacobean work. Some good modern stained glass, from designs by Mr. Burne-Jones, should not be overlooked. It is placed in the eastern windows of the aisles and in that at the west end of the south aisle.

THE ARCHITECTURAL ASSOCIATION:

ELECTION OF OFFICERS FOR 1892-93.

THE last meeting of this Association for Session 1891-92 was held on Friday, the 27th ult., Mr. F. T. Baggallay, President, in the chair.

On the motion for the confirmation of the minutes of the previous meeting, one or two members took exception to one or two passages in the minutes as read, and on the suggestion of Mr. Leonard Stokes it was decided to postpone the confirmation of the minutes until after Mr. Ashbee had read his paper.

Mr. C. R. Ashbee then read a paper on "The Relation of the Architect to the Workman," which we print on another page, deferring the discussion until next week. A hearty vote of thanks was given to Mr. Ashbee for his paper, and for kindly coming a second time with it, under the circumstances mentioned in the *Builder* for May 21, p. 401.

The Travelling Student's Notes.

Owing to want of time, Mr. Kotaro Sakurai, the A. A. Travelling Student of last year, did not read the "Notes" of his tour, but they appear *in extenso* in the new number of *A. A. Notes*. We can only find space for a brief summary of Mr. Sakurai's paper. The author commenced by expressing his thanks to the members for having awarded the Studentship to him last year. He travelled in Somersetshire, commencing his tour on July 7. The first two weeks were spent at Wells, in studying the cathedral and its precincts. The chief glory of the cathedral, he said, lies in its interior. The staircase to the Chapter-house he characterised as "one of the most unique" pieces of work that he had ever seen; while for ingenuity of design, attained with graceful effect, few if any, can equal the Lady Chapel. The parish church of St. Cuthbert possessed a magnificent western tower of remarkably bold design for the period in which it was erected. Besides the ecclesiastical buildings, there are many examples of domestic work, both in the cathedral precincts and town. While at Wells, the author took trips to Glastonbury and Croscombe; the latter place is well worth a visit, for, besides the beautiful church, rich in Jacobean woodwork, there are many old houses, among which is a bay window of a quaint type. He also visited the village of Cheddar, alliteratively known for its cliffs, caves, and cheese, to which two more "C's" of equal interest might be added,—the Church, and the Cross: the former contains a good deal of woodwork and a rich stone pulpit. The hexagonal market cross, of simple design, has been restored recently. The author's next halt was at Langport, which (although not containing much of interest, except the church, whose chancel is considered to be above the average) is a good centre for visiting the numerous churches in the neighbourhood. Those at Curry Rivell, Long Sutton, and High Ham are specially noteworthy for richness of oak-work. At Muchelney there are considerable remains of the Benedictine Abbey of SS. Peter and Paul, founded by Athelstan in 939. Most of the existing parts date from not long before the Dissolution of the monasteries,—*i.e.*, a portion of the richly-panelled cloisters, the kitchen, the ante-room, and a large chamber over, with a fine mantel-piece and linen pattern panelling round part of the wall. Close by is a fifteenth-century thatched cottage, long used as the vicarage house. Huish Episcopi is the nearest church to Langport, and perhaps the most important one in the neighbourhood, as it has one of the best towers of the "Taunton type." The charm of the structure consists chiefly in its elegant details, admirable execution, and the delightful colour of the Ham Hill stone employed. The church at Martock, a typical old country town, is a large structure of the usual local type. The nave of six bays, covered with an elaborate tie-beam roof, is a good specimen of late fifteenth-century work, but perhaps not quite equal in merit to the enthusiastic description of Mr. Freeman, who says:—"The nave is a notable instance of the idea of a great parish church, thoroughly worked out,—a nave as perfect in its own style as the nave of a cathedral." The chancel is undoubtedly that of the older church, and contains five lancet windows at the east end and a curved brace roof. On the south side of the church there is a fourteenth-century manor-house, retaining the original arrangement of the hall (with a good roof), kitchen, and offices, in a perfect state. While staying at Martock the author visited the churches at Kingsbury Episcopi and Stoke-sub-Hamden. The former has a tower almost identical, though somewhat inferior in detail, to that of Huish Episcopi, but the church, itself with its fine rood-loft and screen, is much better in every respect to the last-named. Stoke-sub-Hamden Church, cruciform without aisles, was originally Norman, but now combines work of every period, from Early Norman to Late Perpendicular. The author next went to South Petherton, and saw the house known as "King Ina's Palace," the hall of which has been much restored. He next visited Barrington Court, Montacute House, Odcombe, Preston, and Yeovil. In conclusion, Mr. Sakurai sums up the characteristic features of Somersetshire architecture, speaking highly of its domestic work, but criticising what he calls the "confectionery-like" treatment of many of the church towers, and also expressing the opinion that the position of the towers,—almost invariably at the west end of the nave,—was a most difficult one for the production of an agreeable composition. He had rarely met with any truly successful *façade* thus designed (he did not say this of Somersetshire only); the ends of the aisles, as a rule, formed very awkward terminations, and the arrangement necessitated the use of a large west window in the lower stage of the tower, where the appearance of solidity was much needed.

On the motion of the President, a hearty vote of thanks was given to Mr. Sakurai for permitting his paper to be merely "taken a read," instead of reading it, as usual.

Minutes, &c.

The meeting then reverted to the question of the minutes, which were ultimately confirmed, after one or two emendations suggested in the course of a rather heated discussion, which principally turned on the question of the validity or invalidity of the nomination, made and received at the previous meeting (see *Builder* for May 21, p, 401), of Mr. Gerald C. Horsley as a member of the Committee. It appeared that in the view of the Committee, Mr. Horsley is not a member of the Association, and therefore his nomination to serve on the Committee was invalid. It seems that some months ago Mr. Horsley (for some reason which was not stated) wrote to the secretaries resigning his membership. The receipt of that letter, it appears, was duly entered on the minutes at the time. But it was stated by Mr. Stokes that, at the request of the Committee, he had an interview with Mr. Horsley, in order to induce him to withdraw his resignation. The result of that interview was that Mr. Horsley verbally withdrew his resignation of membership, and Mr. Stokes said he distinctly recollected reporting Mr. Horsley's withdrawal of resignation to the Committee. The majority of the Committee appeared to have no recollection of this, although Mr. Pryce and Mr. Brodie said they distinctly remembered Mr. Stokes reporting the result of his interview with Mr. Horsley. At any rate, there was no entry on the minutes mentioning Mr. Horsley's withdrawal of resignation, and the majority of the Committee, or the officers (the matter was not made quite clear), had, since the meeting at which Mr. Horsley was nominated to serve on the Committee, decided that his nomination was not valid, and that any votes given to him would be lost, whatever might be his position on the poll. It was

pointed out by Mr. Stokes and other speakers that this was a very unfortunate circumstance; that it was a pity that some member of the Committee had not taken objection to Mr. Horsley's nomination when it was made at the previous meeting; and that Mr. Horsley himself was present at the meeting when he was nominated, and, in answer to a question from the President, said he would be willing to serve,—which (said Mr. Stokes) showed that Mr. Horsley himself was quite under the impression that he was still a member of the Association.

Three new members were nominated for election, and the following gentlemen, nominated at a previous meeting, were duly elected, viz., Messrs. W. G. Horseman, J. W. Hoult, E. O. Sachs, G. W. Stone, P. J. Groom, A. M. Sinclair, A. W. Moore, A. Hannaford, R. T. Grove, A. R. Dannatt, H. W. Anderson, and G. F. Grover.

Among the donations to the library was Part XXIII. of "The Dictionary of Architecture," presented by the Architectural Publication Society. A vote of thanks was accorded to the donors.

On the motion of Mr. F. T. W. Goldsmith, a hearty vote of thanks was given to Mr. Ewan Christian for permitting the members to visit the new National Portrait Gallery, as reported in the *Builder* for May 21, p. 399.

Travelling Student for 1892.

The President announced that two sets of drawings had been sent in for the A.A. Travelling Studentship, and the Committee was of opinion that the Studentship should be awarded to Mr. Thomas Arthur Sladdin, and that a second prize of 5*l.* should be awarded to Mr. E. A. Richards. Whilst regretting that there was not a larger number of competitors, the Committee wished to express their high appreciation of the excellence of the drawings sent in.

Election of Officers and Committee.

The President having called for the report of the scrutineers of the balloting papers,

Mr. Beale, one of the scrutineers, said he wished to be allowed to make a personal explanation. He said he happened to be the proposer of Mr. Horsley as a member of the Committee, and he felt that some discredit would attach to him (Mr. Beale) unless he said that he had no reason to suppose that Mr. Horsley was not a member of the Association at the time; furthermore, he was quite sure that Mr. Horsley believed himself to be a member of the Association. Under the Committee's ruling, he (Mr. Beale) and his fellow-scrutineers were of opinion that the balloting-papers were all invalid and that the election was void, and therefore they did not think that there was sufficient ground for presenting their report.*

The President said that the voting papers were not invalid and the election was not void. The only thing would be that any votes given to Mr. Horsley would be lost.

Mr. Beale said he was sorry that he could not present the report.

The President: You must present the scrutineers' report, if you please, or one of the other scrutineers must do so.

Mr. Beale: I am sorry I cannot.

The President: I call upon the meeting to support the chair (loud and long-continued applause).

Mr. Beale: Sir, as it is the evident wish of the meeting, I comply with your request, but it is entirely under protest. I feel that I am presenting a report on invalid voting papers.

The President then read the report of the scrutineers on the result of the voting, which was as follows:—

President: Mr. H. O. Cresswell.

Vice-Presidents.—Mr. Paul Waterhouse, 444 votes, and Mr. E. Woodthorpe, 391 votes.

Committee: F. T. Baggallay, 421; E. W. Mountford, 421; F. R. Farrow, 375; W. Burrell, 301; L. Stokes, 301; W. J. N. Millard, 272; E. J. May, 265; A. W. Earle, 246; A. C. Bulmer Booth, 232; and W. D. Caröe, M.A., 228.*

Hon. Treasurer: Mr. Hampden W. Pratt.

Hon. Librarian: Mr. J. W. Stonhold.

Hon. Secretaries: Messrs. Ernest S. Gale and Mr. F. T. W. Goldsmith.

On the motion of Mr. Cresswell, President-elect, a vote of thanks was accorded to the scrutineers; and on the motion of Mr. Leonard Stokes, a hearty vote of thanks was given to the retiring President, and to the retiring Vice-Presidents (Messrs. F. R. Farrow and E. W. Mountford) for their services during the past year. Mr. Baggallay was highly eulogised by Mr. Stokes for the indefatigable manner in which he had discharged the exceptionally onerous duties of the year, especially in connexion with the first year's working of the new curriculum.

Mr. Baggallay having briefly replied, the meeting terminated.

* Mr. Sydney Beale has sent us a long letter, detailing the reasons of this action taken by the scrutineers, to which we cannot give space; we may merely mention that there appears to have been a difference of opinion as to whether Mr. G. C. Horsley, who had early in the year resigned membership, had or had not formally withdrawn his resignation, as he had been invited to do. The scrutineers counted the votes under the impression that those for Mr. Horsley were valid, while it was stated afterwards at the meeting that Mr. Horsley was not a member. The scrutineers therefore considered the lists were informal or invalid. —ED.

The Annual Dinner.

The work of the session was brought to a close very amicably and pleasantly by the annual dinner, which was held at the "Criterion" on Tuesday evening last, Mr. Baggallay in the chair. The toast of "The Queen and Royal Family" having been duly honoured,

The Chairman proposed "The Royal Academy," which he spoke of as the only body, besides the Association, which had ever done anything for the training of architects. Although there was no doubt that the Academy might do more, admission to its Architectural School was rightly looked upon as of the greatest educational advantage to a young architect. He regretted that there was no Academician or Associate present to respond for the toast, which he coupled with the name of Mr. H. L. Florence, a former gold medallist and travelling student of the Academy.

Mr. H. L. Florence, in responding, said he regretted that they had not the advantage of the presence of some member of the Academy, who might have been asked to respond to the toast. He noticed that the toast appeared on the list as "The Royal Academy." He should have preferred to reply for "The Royal Academy of Arts." He could conceive such an academy, in which Architecture would take her rightful place as an elder sister of the Arts, and not be a mere Cinderella.

The next toast was "The Royal Institute of British Architects," proposed by the Chairman, and coupled with the name of Mr. J. M. Brydon, who replied.

The toast of the evening, "The Architectural Association," was proposed by Mr. W. Hale, President of the Birmingham Architectural Association, who said he was a member of the London Association forty years ago, in the days when it used to hold its meetings in Lyon's Inn Hall. With the toast was coupled the name of Professor Kerr, the first President of the Association, who, in reply, made an interesting speech contrasting the Association as it was forty-five years ago and as it is now.

The other toasts were "The Visitors," proposed by F. T. W. Goldsmith and coupled with the name of Mr. Knowles, President of the Northern Architectural Association; "The Instructors and Studio Visitors," proposed by Mr. Leonard Stokes, and responded to by Mr. E. W. Mountford and Mr. Holmes; "The President-Elect" (Mr. H. O. Cresswell), proposed by the Chairman; and "The Retiring President and Officers," proposed by Mr. Cresswell and coupled with the names of Mr. F. T. Baggallay and Mr. E. S. Gale. During the evening some excellent singing was given by members of the A.A. Lyric Club.

NEW SURVEYS OF LONDON PARISHES. — The Vestry of St. Mary, Newington, have commenced a re-survey of the parish for drainage purposes, and we understand that Mr. Alfred Mark, who has recently been engaged upon similar work, under Mr. Charles Mason, Surveyor to St. Martin's Vestry, Charing-cross, has been entrusted with the work, which will bring the whole of the plans of the district (632 acres in extent) up to the present date. Mr. Mark previously prepared a new map of the Parish of Islington, under Mr. J. Patten Barber, Chief Surveyor to the Vestry.

* The number of votes recorded for the unsuccessful candidates was not announced, but, in answer to a question by Mr. Dicksee, the President stated that Mr. Horsley had not received a sufficient number of votes to place him amongst the first ten candidates.

Books.

Laxton's Builders' Price-Book for 1892. Seventy-fifth edition. London: Kelly & Co.

Lockwood's Builder's, Architect's, Contractor's, and Engineer's Price-Book for 1892 Edited by FRANCIS T. W. MILLER, A.R.I.B.A. London: Crosby Lockwood & Son.

Spon's Architects' and Builders' Price-Book. By W. YOUNG, Architect. London: E. & F. N. Spon.

THE demand for these books finds sufficient proof in their regular reappearance year by year, as also in their steady increase in bulk. The veteran "Laxton," now in its seventy-fifth edition, numbers about 760 pages, of which nearly 200 are devoted to trade advertisements. We have already stated our opinion that tables of prices might and should be drawn up in a more scientific manner than is attempted in any book we know, and we are therefore unable to express unqualified approbation of the works before us, in which the old system is still followed. At the same time, we are glad to notice that within these limits a real effort is made to write the books up to date, and to keep the prices tolerably coherent. Specially noticeable is this in respect of the new kinds of wood now used in joinery, and in the matter of new sanitary appliances. The demand for the latter has greatly increased of late, from the awakening of the public intelligence to the vital importance of sanitation, and the large space given to them in these pages is well employed. It would be convenient to be told whether the prices set out for the various patent fittings include in all cases the same percentage of profit, or whether they are merely list prices subject to varying discounts.

One of the uses of a price-book should be to assist builders in calculating prices for themselves, to meet the multitude of cases which arise wherein the stereotyped items do not apply. This function cannot be adequately discharged without a carefully-prepared analysis of a large number of prices, showing the elements of which they are made up. In "Laxton" last year a chapter appeared entitled, "On the Adaptation of a Price-book to Meet Varying Rates of Wages," which was certainly a step in the direction we have indicated. The approximate proportions of labour and materials were there given in the cases of several trades, each trade being treated as a unit. Thus the cost of labour in bricklayers' work was put at one-third of the whole, in carpenters' and joiners' work at two-thirds, and so on. This is obviously very rough, and we are not concerned at the moment to say how near to accuracy these ratios may come. But it was a welcome effort, and we regret to see that this year, so far from being carried further, it is abandoned,—although the compiler of the carpenters' prices seems to be unaware of the fact (p. 99). We may be asked, why, when the books are to all appearance satisfactory to the trade, depart from the present system? We reply that the trade does not rely on them for serious pricing. It is, indeed, something of a misnomer to call them price-books. They are a compendium of handy information on matters connected with building, and would command a sale if there were not a single price in them. To say nothing of tables of weights of materials, tables for calculating weekly wages, tables for ascertaining the value of leases, annuities, &c., model conditions of contract, the Metropolitan Buildings Acts, with cases and decisions thereon, the By-laws of the London County Council and the list of District Surveyors, we may obtain from these volumes instruction in mensuration, in the art of measuring builder's work of all kinds, in perspective drawing, and in classical design. Nay more, we may here learn that "few men realise the importance of trifles: stored, they make one man's fortune; neglected, they cause another's ruin. There are few trades in which this occurs more frequently than in the builder's"! ("Laxton," p. 399). Notwithstanding the apparent plethora of price-books, there still remains room for one which shall not only give tables of prices, but shall examine and explain the principles on which they are based, and the methods by which they are arrived at.

The First Principles of Mechanical Engineering. By JOHN IMRAY and C. H. W. BIGGS. London: Biggs & Co., 1892.

To write a book on Mechanical Engineering without using any but simple mathematics is

a much more difficult task than most people would imagine, since laborious and tedious description is the penalty to be paid for despising algebraical formulæ, and the result, instead of being a scientific treatise, is but a popular hand book on the subject. Valuable information may, however, be given even in this way, and the authors have left but few subjects untouched between such limits as the mechanics of antiquity and modern screw-cutting gear. A good deal is said about mechanical drawing, materials and stresses, sources of mechanical power, and such subjects, and although the book contains but little that is original, yet the explanations and descriptions, besides being well illustrated, are always written in a clear and simple manner, suitable for the class of readers for which the work has been prepared.

The Beam, or Technical Elements of Girder Construction. By WILLIAM LEWIS BAKER, A.M.I.C.E. London: Chapman & Hall, Limited. 1892.

ONE of the first things that should be mastered by the student commencing to study engineering is the strength of girders and beams under the various conditions of loading to which they may be exposed, and in the above little book this subject is treated in a very clear manner, and without employing complicated algebraic formulæ. Commencing with an explanation of the elementary principles, the author shows how to ascertain the stresses in cantilevers and beams, and also how the different parts of cast-iron and plate girders should be proportioned to resist these stresses. The methods of computing the stresses in simple lattice girders are also dealt with, and by a series of well-chosen examples the author illustrates what calculations are most frequently required in the ordinary practice of the architect and engineer, and students wishing to become acquainted with the elements of the subject could not do better than to study carefully this little book.

Palliser's Specification Blanks. New York: Palliser, Palliser, & Co.

THIS is a specimen of one of the skeleton forms of printed specification published by Messrs. Palliser & Co., of New York, the object of which is of course to shorten specification writing (which is a gain) and to take a good deal of the thinking out of the architect's hands, which is not a gain. The skeleton in this case is rather too much filled up, and moreover is not suited for English practice, which would require a form for itself differing from that of the States. We do not much approve however of skeleton specifications, except those which an architect draws up and lithographs or prints for his own use. If that is carefully done it saves the trouble of writing over again permanent requirements and forms a memorandum also, and it then represents the architect's own practice derived from his own thought and experience, and he is likely to leave it so far open as to leave room for the specification of the special requirements of each separate building. But a published form of specification only tends to do away with individuality of work and to save an architect the trouble of thinking out fully the carrying out of his work; and we do not think any architect of original power and ability will ever care for published specification forms. They may be useful to those gentlemen who at present (we believe there are not a few) leave the quantity surveyor to write the specification: but even they will want an English and not a New York edition.

Brick for Street Pavements: an Account of Tests made of Bricks and Paving-Blocks, with a Brief Discussion of Street Pavements and the Method of Constructing them. By M. D. BURKE, C.E. Cincinnati: Robert Clarke & Co. 1892.

A LARGE part of the contents of this pamphlet was included in a report made to the village authorities of tests of material to be used in paving streets at Avondale, of which the author was "village engineer" (we presume "village" has not precisely the same meaning in the States as here). The tests were made upon specimens of granite and of various bricks, and the results of chemical analysis, absorption tests, and of crushing, transverse strength, and abrasion tests are given. The specimens are numbered in the tables, and a description of the quality of each specimen given in the text, referring to the tabular number. The object of the pamphlet is, as a sequel to these tests, to recommend the use of brick as a pavement, as the best substitute for granite in an economical sense. With a hard brick this may be worth trying, but in regard to towns it is not of course a noiseless pavement, and that (in a comparative sense) is almost a *sine quâ non* nowadays. Engineers and road-surveyors will, however, in any case find the statistics of interest.

Popular Map of England and Wales: in cloth case. Edinburgh: W. & A. K. Johnston.

THIS is one of the best cheap and portable maps of England that has been issued. It is a very full one, admirably engraved, and on a scale about double that of the usual larger type of atlas map. A detailed map of the environs of London is added in the margin. The map folds into a sufficiently small case to carry in the pocket. It is sold either mounted or unmounted, at the price of 1s. and 2s. respectively, but we should recommend the mounted map as the better economy. These folding maps, on mere paper, always tear after a short usage, even of the most careful kind.

House Drainage Hydro-mems. By G. M. LAWFORD. London: Geo. Gill & Sons.

THIS very small publication consists simply of a card printed on both sides and made to double up so as to go easily into the pocket. It contains tables of velocity, inclination and discharge of house drains, weight of lead pipes, water pressure, and cisterns' capacities and usual stock sizes, with a few general memoranda. It is very useful as a reference card for data which are often wanted and not easily carried in the memory.

Some Notes on the Public Health Act, with an Appendix on London Fog and Smoke. By HARRY G. ASSITER. London: Crosby Lockwood & Son.

THIS is one of the numerous commentaries on the spirit and bearings of the Public Health Act, which have appeared since that Act was passed, and gives a useful *résumé* of its provisions and of their practical results when put into action. The author adds a short essay on the smoke question, which he has taken up a good deal, in which he urges the application of legal restriction against creating smoke to domestic fireplaces as well as to factories. Mr. Assiter can see (what some people cannot) that the public will not accept stoves or anthracite coal as a substitute for the open fire, and falls back upon the recommendation of a modification of the present system of combustion, which he observes "is not a difficult matter;" but he does not say what modification he proposes, which rather takes away the point from the whole essay.

Camping Out. By ARTHUR A. MACDONELL, M.A. London: G. Bell & Sons. 1892.

WE do not know why this book has been sent to us, as it has no sort of relation to our special subjects of interest; but for any of our readers who want to make a boating and camping-out holiday we can recommend it as a readable book, with a great many useful suggestions for novices in open-air living.

Correspondence.

To the Editor of THE BUILDER.

VICTORIA CATHEDRAL COMPETITION.

SIR,—My attention has been called to the fact that my designs for the new cathedral at Victoria, British Columbia, were published in the *Building News* last week.

May I ask room to state that this has been done entirely without my knowledge and consent, and much against my wishes.

THE AUTHOR OF THE DESIGN MARKED "NEW AND OLD."

June 1, 1892.

A QUESTION OF BUILDING PENALTY.

SIR,—In June, 1891, a builder entered into a contract for the erection of a building which was to be completed by October of the same year under a heavy penalty. This building was not completed for the following reasons:—

1. There was an extra depth of excavation, and consequently an extra quantity of foundation, owing to bad and insecure ground.

2. The architect gave orders for commencing the building before the land was properly conveyed, thereby preventing the builder from proceeding with the works.

3. Various alterations were ordered to the interior walls.

4. Iron built girders were ordered in lieu of wood framing, causing many weeks delay.

5. A very glaring mistake in the quantities, whereby a quantity of extra work was caused.

6. Numerous alterations at completion, caused by the local authorities objecting to pass the building till alterations had been done to the satisfaction of the surveyor.

7. Delay in getting details from the architect, some of which were not delivered, but had to be prepared by the builder long after the works were specified to be completed.

The architect has given the proprietors a final account and also a certificate, less the error in quantities. The proprietors now object to pay the builder unless he will allow the amount stipulated to be paid if the building was not completed within the specified period.

Are the proprietors entitled to deduct this sum where it is not the fault of the builder, but owing to the numerous alterations?

Who should the builder apply to for the amount of the error in quantities?

If any of your readers would kindly give their views, it would oblige,

A CONTRACTOR.

FIRE-BRICK.

SIR,—Will you be good enough to allow me the assistance of your pages to inquire what make of fire-brick is considered to be the best in the market, and the means of ascertaining and procuring a report of the refractory qualities of any make of fire-brick? J. C. KENWOOD.

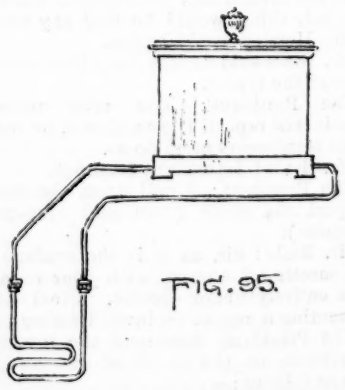
The Student's Column.

WARMING BUILDINGS BY HOT WATER. XXIII.

EXAMPLE BUILDING WORKS.

IN the following few examples it has to be mentioned, as was done when giving examples of horticultural works, that it may never fall to the reader's lot to erect an apparatus like any one of them; but by describing, and also illustrating, one or two methods of carrying out the works, great assistance can be rendered to the unskilled. The principles are thus made more clear, and once the principles are grasped, nothing else can be gained except by actual experience. The examples are merely supposed requirements, and the possibly best way of meeting them. It is impossible to do more than this, as there are but very rarely two works anyway resembling one another.

Fig. 95 shows a convenient little arrangement (it can hardly be called an apparatus) to give



warmth into a room adjoining or near the place where the fire is. The coil is supposed to be at the back of an ordinary open-grate fire, and furnishes heat to a few feet of pipe or a small radiator, which, however, should not be far away. This drawing shows a coil of three ¾-in. pipes, the top pipe being continued upwards as the flow, and the lower one forming the return. Two unions are shown just above the fire-box to facilitate the removal of the coil if eventually it becomes fractured. There is no doubt it will fail one day if it has much usage, as dirt will find its way into the pipes, and eventually fill up the lower one, and cause it to split. If steam quality tube is used, it will last very well for several years, only having use in the winter. A piece of copper tube for the coil would do well.

It is hard to suggest what actual work this little appliance is capable of doing, it depends upon several things. Firstly, the size of the fire; if it is a fire-box holding a good thickness of fuel, that is a mass of fuel deep from front to back, very effective results are obtained. If the fire-box has wholly fire-brick at back and sides (as with all good modern grates), it helps matters, and the attention to the fire will affect the heating of the pipes. In putting pipes, containing water, in the fire of an open grate, we introduce a cooling influence that may completely spoil the utility of the grate, for it must be particularly noted that the combustion effected in an open fire is very different to that in a close stove or boiler, with the important assistance it has by the draught that is induced. With a close stove the draught passing through the fuel (and not over it as it does with a grate fire) causes combustion to proceed briskly irrespective of cooling influences, and this speed of combustion can be regulated, just as may be required, by the damper.

If the grate fire-box is not a large one, three pipes will have a deadening effect upon the fire, and two or one pipes only must be used for small requirements. The uses of this arrangement are that a radiator can be put into a neighbouring room, which is perhaps of such a size as not to be heated by its own fireplace; or it may be used to introduce a little warmth into a room that is not used regularly. If the coil was in a large fire it might be made to heat sufficient radiating pipe for the warmth a billiard-room should always have when out of use.

The water-supply may be provided for by a little cistern in any convenient place where it is not seen, or, the radiator may be fitted with a little vase filling cup at top as shown. This latter article then acts as an air vent. In any case an air-cock will be needed at the highest point in the radiator to allow for the escape of air as it is being filled. No stop-cock would be required with this apparatus; but a draw-off service (for emptying purposes only) might be found useful if it can be conveniently placed.

The next example, fig. 96, illustrates two radiators in connexion with a small independent

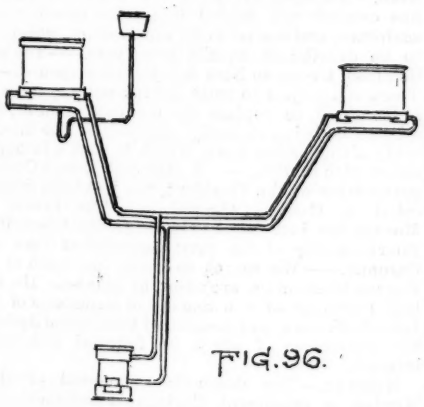


FIG. 96.

boiler, for heating an entrance hall or other similar purpose. Of course, coils or hot-water pipes could be used in place of the radiators, if so desired. There is scarcely a better purpose to which heating works can be put than this. The great gain that is effected by providing warmth in an entrance hall cannot be overestimated. This part of the house, with the staircases leading from it, has been likened to an artery, as it furnishes a constant current of air to the rooms and places that lead off from it. It must be known by everyone that in nearly all cases the greater part of the air entering a house (and the volume is great) enters by the doors and openings it can find on the ground floor. This inflow is necessary, as the chimneys in a house require air, also the occupants of course, and the house itself can well be likened to a great chimney, for an upward current of air, as a rule, always manifests itself inside. These conditions, perhaps, do not exist, or at any rate to such an extent when a good system of ventilation is provided; but this, unfortunately, is absent in too many cases.

Assuming that a considerable volume of air finds its way into the house by the best route it can, the larger proportion will pass through the entrance hall, and, as a rule, this part of the house is very cold; all doors in the vicinity have disagreeable draughts to them; and the staircases are in quite as bad a state. By introducing heat in the entrance hall, a really important benefit is obtained. The heating medium should be placed as near the outer doors as possible, so as to contribute its warmth to the incoming air. By this means the hall is made agreeable if not quite warm; the air entering the rooms is tempered, and that which passes up the staircases goes to make the upper parts of the house less cold. By keeping the boiler fire alight through the night, the very disagreeable degree of cold experienced in the halls and staircases at early morning is prevented. Engineers are particularly cautioned against using the same quantity of radiating surface in an entrance hall as they would in a room, if they want to make a success of the job. These places are not usually expected to be of as high a temperature as a room; but, notwithstanding this they require 50 per cent. more pipe. The necessity for this is due to the air of the hall being in tolerably rapid motion always; being taken by the rooms, and particularly the staircases, leading from it. If the gain effected was generally known, no residence of any pretension would be without heat in the entrance-hall.

In this example a small, independent boiler is shown, which would be situated in a cellar or basement room below. From the boiler is carried an inch flow and return service, by the best route (observing the principles already dwelt upon), and the pipes can be carried first to one radiator and then on to the other, or can be taken to a central point and branched each way as shown. If the pipes be carried first to one radiator, and then on to the other, the connexion to the first would have to be as fig. 94 (Art. XXII.), or the second coil would be much longer than the first in heating.

In branching the services as illustrated, a little better rise should be given to the pipes which extend furthest, so as to equalise results each way. There would be no need for stop-cocks in a little apparatus like this. The cold supply would be provided by a small cistern as shown, either filled by hand, or with a ball valve. If the latter, the cistern should only fill just an inch or two, so as to allow for the expansion of water when heating. An air-cock would have to be fitted in each radiator, and cleaning plugs, and an emptying cock should be provided to the boiler.

The pipes from the boiler should be 1 in., as just mentioned, but there would hardly be need for the branch to each radiator to be more than ¾ in. It will be seen that the cold supply-pipe has the customary dip in it to prevent the heated water circulating into the cold-water tank. The way in which this acts has been fully explained, and does not need repeating here.

SURVEYORSHIPS.

SALFORD.—A meeting of the General Purposes Committee of the Salford Town Council was held on the 27th ult., at the Salford Town-hall, presided over by the Mayor, Mr. Alderman Keevney, for the purpose of appointing a Borough Engineer and Surveyor, in the place of Mr. A. Jacob, who has retired. Out of the large number of applicants for the position, the following five candidates were selected to appear before the committee:—Mr. Geo. J. C. Broom, Borough Engineer of St. Helens; Mr. J. Corbett, engineer, Manchester, who lately resigned his office as a Salford councillor; Mr. H. C. Marks, Borough Engineer of Dewsbury; Mr. H. T. Marten, deputy Borough Surveyor of Bradford; and Mr. John Price, Engineer and Surveyor to the Toxteth Park Local Board, Liverpool. The voting resulted as follows:—Price, 22; Corbett, 21; Marks, 18; Broom, 13; and Marten 12. The selection of Mr. Price will come before the next meeting of the Council for confirmation.

GENERAL BUILDING NEWS.

THE PROPOSED EXCHANGE ALTERATIONS, MANCHESTER.—The Improvement Committee of the Manchester City Council met on the 25th ult., and had under consideration the plans submitted by the Directors of the Manchester Royal Exchange for the extension of the building in Cross-street. In view of the proposed alterations, the Sub-Committee had recommended the adoption of a new building line in Cross-street, the practical effect of which would be to put an end to the present scheme of the Directors. The Committee gave their full and unanimous approval to the proposal of the Sub-Committee. The new building line for Corporation-street, from Market-street to Hanging-ditch, was also approved.—*Manchester Guardian.*

PROPOSED PARISH BUILDINGS AND CLUB, BURTON-ON-TRENT.—Lord Burton, having presented the town of Burton-on-Trent with the present St. Paul's Institute and the adjoining club premises for municipal buildings, has consented to erect a new church institute. The site selected for the building is at the corner of the Grange field. The building will be practically divided into two portions, viz., the club and the Sunday-school. The chief entrance for Sunday-school and parish purposes will be from St. Paul's-square, while the club premises will have a separate entrance, also from the square. The main entrance will lead direct to the lecture-hall, 66 ft. by 40 ft., which is to have walls of coloured brickwork and a panelled plaster ceiling. There will be a raised platform at the end, and retiring-rooms will be provided, these being approached by a separate staircase and entrance. On the same floor will be the parish-room, 38 ft. by 22 ft., and a large kitchen. A side entrance will be provided to the lecture-hall, and access will be given therefrom to the boys' and girls' yards, which will be fitted up with the necessary offices. At the south end of the building will be the caretaker's residence. Cellars will be built under the parish kitchen and class-room. A staircase near the side entrance will give access to the upper floor of the Sunday-school and parish-rooms, and over the lecture-hall three class-rooms, each 17 ft. by 16 ft., and a teacher's reading-room in connexion with the general library of the club, will be provided. On the same floor will be a class-room, 40 ft. by 33 ft., and a smaller one leading from it. The club premises will be over the parish-room. The club-room will consist of a reading-room, 27 ft. by 22 ft.; a billiard-room, 44 ft. by 22 ft.; club-room, 25 ft. by 15 ft.; and library, 30 ft. by 12 ft. There will also be the Secretary's room and lavatory. The staircases in the public parts of the building are to be of stone, and all the floors will be fireproof. The height of the rooms will vary from 15 ft. to 20 ft. The main corridors will be 7 ft. wide, and screens with folding swing doors will be fixed inside all outer entrance doors. Siemen's patent regenerative lamps are to be used for lighting purposes, and there will be open fireplaces in the class-rooms and club-rooms, and hot water pipes for heating will be laid over the whole building. Block floors will be laid throughout. Messrs. Thomas Lowe & Sons, of Burton-on-Trent, whose tender for 9,925*l.* has been accepted, will be the builders. The work will be carried out from the plans prepared by Mr. Reginald Churchill, architect, Burton-on-Trent.

ADDITION TO SCHOOLS, MIDDLETON, LANCASHIRE.—Extensive additions are being made to the Parish Church Schools, Middleton, consisting of two large class-rooms, new entrances, cloak-rooms, staircases, and offices. The external walls will be faced with South Ouram parpoints, relieved at all openings with dressed Huddersfield stone. The floors to cloak-rooms, &c., will be fireproof, and the interior woodwork pitch-pine. The works will be carried out by Messrs. Grundy & Sons of Middleton, under the supervision of Mr. T. A. Fitton, architect, of Middleton.

RESTORATION OF ST. LAWRENCE CHURCH, JERSEY.—On the 18th ult. the old parish Church of St. Lawrence, Jersey, was re-opened after restoration. The work, which was begun in 1889, has been completed under the direction of Mr. John E. Trollope, of Messrs. Giles, Gough, & Trollope, of London. The old church, says the *Jersey Express*, dating from 1199, had been allowed for centuries to fall into decay. Both the exterior and interior of the edifice have undergone renovation. The contractors were Messrs. Woodsford & Harris, and Mr. Cuzner has done the flooring and pewing. The passages are all floored with oak blocks, the remaining portion of the floor being in deal blocks. The pulpit and font are the gift of Mr. Elias Collas, of La Folie. Two stained-glass windows have been placed in the chancel, both representing scenes in the life of St. Lawrence. There has been acquired a new oak lectern and two oak sanctuary chairs, designed by Mr. John E. Trollope, and executed by Mr. Harry Hems, of Exeter.

MINERS' HALL, SILKSWORTH, DURHAM.—On the 21st ult. the corner-stones of the new Miners' Hall at Silksworth were laid by Mr. Samuel Storey, M.P., and other gentlemen. The new building will occupy a central position in the village, and will cost about 4,000*l.* The building will be of red brick, with stone dressings, having a length of 80 ft. by 45 ft. wide, and height inside 30 ft., the height from the floor to the vane on the turret which will surmount the roof being 66 ft. 6 in. There will be an entrance hall with a check office on the right-hand side, and a committee-room on the left. At the far end of the hall there will be a platform, with a lobby on each side, in addition to two retiring-rooms on the right of the platform. There will be a gallery above the check office and committee-room. On the right-hand side of the building, on the ground level, will be a reading-room, with a billiard-room above. There will also be a heating chamber, and offices and conveniences. The window of the gallery will be filled with lead lights. Mr. Henry Grieves, of South Shields, is the architect, and the contract is being carried out by Mr. T. P. Shafto, builder, of Sunderland.

RESTORATION OF BRIGNALL CHURCH, YORKSHIRE.—On the 12th ult., the Church of St. Mary, Brignall, was opened, after restoration, by the Bishop of Ripon. Funds did not admit of the renovation of the exterior, and where such actual repair has been done was necessary to preserve the structure from

decay. The three lancet lights of the east window have been filled with stained glass from the studio of Mr. C. E. Kempe, of London, representing the Crucifixion and St. Mary and St. John, which, together with the pulpit and reredos, is the gift of Miss Easton, of West Layton Manor. The architects for the restoration were Messrs. Johnson and Crawford-Hick, of Newcastle-upon-Tyne, and the contractors were:—For mason and general repair, Mr. J. Kyle, Barnard Castle; woodwork, Mr. R. Snaith, Darlington; plumbing and glazing, Mr. C. Hedley, Barnard Castle; carving, Mr. R. Hedley, Newcastle-on-Tyne; gilding, Mr. R. Halfnight, Sunderland.

ENLARGEMENT OF SCHOOLS, IDLE.—A memorial-stone of a new wing to the Church schools at Idle, Yorkshire, was laid on the 14th ult. by Mr. C. J. Vint, of Bradford. An assembly hall is being erected, and a re-arrangement of the old schools is being made. The cost of the additions and alterations will be about £1,600. Messrs. Kendall & Bakes, of Leeds and Idle, are the architects.

CONGREGATIONAL CHAPEL, BEDWAS, MONMOUTHSHIRE.—A new Congregational Chapel has just been erected at Bedwas. The building is 39 ft. long by 34 ft. wide, and it has accommodation to seat 320 people. The plans of the new chapel were prepared by Mr. Edmund Jones, Caerphilly, and the contractor was Mr. Thomas Rossiter, also of Caerphilly.

NEW CHURCH, APPERLEY BRIDGE, YORKSHIRE.—The foundation-stone of a new church for Apperley Bridge and Greengates was laid on the 7th ult. by Mr. John W. Garnett, of Greengates House. The new edifice is situated at the top of Apperley-road, in the parish of Eccleshill. Besides chancel, organ chamber, and choir vestry, there will be sitting accommodation provided for about 300 persons. The building is from the plans of Messrs. Kendall & Bakes, architects, Leeds. The estimated cost, including furnishing, is about 3,000*l*.

BANK PREMISES, ST. HELENS.—The enlarged premises of the Manchester and Salford Bank in St. Helens have just been completed. The old premises have been enlarged by the addition of the adjoining shop and a public-room. The dados and counters and desks are of polished walnut. A consulting-room for the manager is enclosed with glazed panel screens, and lighted by a dome. The heavy columns and girders necessary to carry the first and second floors of the building have been relieved by fibrous plaster, and cornices of the same material form a panelled ceiling. A strong-room has been formed of concrete walls 18 in. thick. Outside, the front of the building has been faced with Aspatria (Cumberland) stone. The total cost has been 2,200*l*. Messrs. J. & W. Gandy, St. Helens, were the architects, and the builder was Mr. R. H. Davies; Messrs. Critchley Bros. & Co. have executed the decorations in the bank and the lighting of the building.

PRIMITIVE METHODIST CHAPEL, RIPLEY, YORKSHIRE.—On the 27th ult. the memorial-stones were laid of a new Primitive Methodist Chapel on the Nottingham-road, Ripley. The architect is Mr. H. Gill, of Nottingham; and the contractor Mr. Ellis, also of Nottingham. The estimated cost of the chapel is 2,000*l*., including Sunday-school premises for 300 children. The chapel accommodation is for 450 persons.

EPISCOPAL CHURCH, STRANRAER, WIGTOWN.—On the 25th ult. the new Episcopal Church of St. John, Stranraer, was opened. The church is erected at the corner of London- and Bellevilla-roads. It is seated for 180 worshippers. The building is in the Gothic style, built of whinstone, with red free-stone facings. The entrance is at the south-west corner, facing London-road. The interior consists of a nave, with chancel at the east end. Within the altar-rails there are seven Scriptural panels in oak. Mr. J. C. Macfarlane, Stranraer, was the architect, and the work was executed by local contractors.

SCHOOL BUILDINGS, &C., LEEDS.—On the 27th ult. the Right Hon. W. L. Jackson, M.P., laid the foundation-stone of a new Sunday-school and Parochial Institute for All Hallows', Burley, Leeds. The Sunday-school will accommodate 1,100. There will be separate departments for boys, girls, and infants, and also a number of class-rooms. The boys' schoolroom will measure 50 ft. by 30 ft., and 14 ft. high. It will be lighted by windows on three sides. The girls' schoolroom will be 60 ft. by 30 ft. That portion of the building to be used as a parochial institute will be entered from Hartwell-road. On the second floor there will be a large assembly-room. The architects are Messrs. Kelly & Birchall, of Leeds, and the contractors are Messrs. Wood & Airey. The total cost of the undertaking is estimated at about 3,000*l*.

REBUILDING OF FALSTONE CHURCH, NORTHUMBERLAND.—The small church of Falstone, on the Scottish border, was almost entirely destroyed by fire in December, 1890, only the walls of the tower and a height of 3 ft. or 4 ft. from the ground of the main walls of the church escaping destruction. It has just been rebuilt from plans prepared by Messrs. Plummer & Burrell, architects, of Newcastle, together with the addition of a small chancel. Messrs. Martinson & Welton were the builders. The stained-glass three-light traceried east window, by Messrs. James Powell & Sons, of London, was the gift of Mr. Thomas Spencer, and the memorial font, by Messrs. Jones & Willis, was the gift of Miss Picton. The plumbing and iron-founder's work has been executed by Mr. Scott, of Byker; the tinted glazing by Mr. Baguley, of Newcastle; the painting by Mr. Forbes, of Birtley, North Tyne; the green Westmoreland slating is by Mr. C. Nicholson, and the oak parclose screens, the pulpit, and the reredos dado were the work of Mr. Ralph Hedley, of Newcastle, from designs by the architects. The bell was founded by John Taylor & Co., of Loughborough, Leicestershire. The church is heated with a Musgrave stove with a descending flue. The aisles and chancel are laid with mosaic work by Mr. J. F. Ebner, of London, borders, monogrammes, and symbols being inlaid in the chancel flooring, this work being executed by Italian and Venetian workmen. The lamp pendants and brackets, communion rails, and pulpit reading-desk are supplied by Messrs. Hart, Son, & Peard, of London. The choir-seats and reading-desk and the external doors are all of oak. The church is internally ceiled with a waggon-vaulted boarded roof, divided into panels by longitudinal and transverse mouldings, having bosses at their intersection, and with a moulded and quatre-foiled pierced cornice course. Buttresses have been introduced to the exterior of the church and to the old tower. The door hinges, vestry and other fittings, are made from the architects' designs.

RESTORATION OF PARISH CHURCH, HERRINGWORTH, LINCOLNSHIRE.—The Bishop of Peterborough re-opened, on the 19th ult., the parish church of Herringworth, which has undergone restoration, under the superintendence of Mr. H. M. Townshead, architect, of Peterborough. The fabric has been under repair during the last nine months, and the work has been executed by Mr. S. Halliday, builder, of Stamford. The chancel has been restored at the cost of Mrs. Tryon, of Bulwick Hall, as a memorial of her late husband. There is a new pitch-pine roof in the chancel. In the nave the greater part of the roof is new, and is mainly of oak. The roof has been releaded. The seats are of pitch-pine. The old Jacobean pulpit has been restored. The nave has been refloored with wooden blocks. The screen has been restored, and the galleries in the church removed. The upper part of the steeple has been rebuilt. During the progress of the work part of an old Norman font was found in the wall of the chancel, and the relic is to be inserted in some conspicuous place in the building.

STAINED GLASS AND DECORATION.

MEMORIAL WINDOW, THORPE SATCHVILLE CHURCH, LEICESTERSHIRE. — A stained-glass window, consisting of three lights and tracery, the subject of which is "The Crucifixion," has been placed in the east window of Thorpe Satchville Church, near Melton Mowbray, to the memory of Martha Madeline, the late wife of Mr. Edmund Arthur Paget. The work has been carried out by Messrs. Winfields, Limited, of London.

MEMORIAL WINDOW, PARISH CHURCH, YARDLEY, WORCESTERSHIRE.—A stained-glass west window, placed in Yardley Parish Church in memory of the late Mr. Joseph Barrows, was unveiled on the 1st ult. The window is by Messrs. John Hardman & Co., and has been erected under the superintendence of Mr. J. A. Chatwin. The subject illustrated is that of our Lord coming in glory with His saints and angels to judge the world.

MEMORIAL WINDOW, JEDBURGH PARISH CHURCH.—A stained-glass window has just been put into the east end of the north aisle of Jedburgh Parish Church in memory of the late Mr. and Mrs. Charles Anderson, of Glenburn Hall. The window is composed of two pointed lights, with cusped circle above, and is by Messrs. Clayton & Bell, London.

STAINED-GLASS WINDOW, PARISH CHURCH, BODMIN, CORNWALL.—A stained-glass window has recently been erected in the south aisle of Bodmin parish church by Mr. George Henderson, J.P., of Bodmin, in memory of his wife. The window has been made to correspond in form as nearly as possible with two others recently unveiled as military memorials. In the upper lights of the old tracery figures of angels have been inserted bearing scrolls. The four long lights are occupied by the following full-length effigies:—1, Saint Anna, the aged prophetess; 2, St. Mary, the Blessed Virgin; 3, St. Elizabeth, her cousin, mother of St. John the Baptist; 4, St. Mary of Bethany. Above them are canopies, surmounting groups illustrative of the parable of the good Samaritan. The window has been supplied by Messrs. Clayton & Bell, London.

THE TURNERS' COMPANY. — The Worshipful Company of Turners announce that they will offer this year, according to custom, their silver medal, five guineas, and the Freedom of the Company, for the best specimen of Turning in Wood or Pottery. Objects for competition are to be delivered at the Mansion House during the week ending Friday, October 21. Further information as to the competition may be obtained from Mr. Edgar Sydney, 53, Gresham House, the Hon. Secretary to the Competition Committee.

FOREIGN AND COLONIAL.

FRANCE.—The National Gobelins Manufactory has just executed a tapestry for the National Library, the designs for which have been painted by the artist, J. B. Lavastre. This tapestry symbolises "Mechanism."——The Académie des Beaux-Arts has awarded the "Jean Reynaud" prize to the painter Joseph Blanc for his work "The Battle of Tolbiac," which is in the Panthéon.——A Roman mosaic formed of black and white cubes has been found at Lyons on the rope railway to Fourvières. A fine mosaic has recently been found at Saint Colombe-les-Vienne (Rhone). This mosaic represents "the works of the field," and the allegories of the Seasons framed in a rich border.——In destroying the foundations of a house at Cahors (Lot) the workmen have brought to light the ruins of a Roman habitation, the walls of which bear traces of fresco painting, and the halls are paved with mosaic. They have also found some potteries, money, and many interesting things in bronze and marble.——The wooden suspension bridge of St. Pierre at Toulouse has been entirely destroyed by an incendiary.—— The work of arranging the historical museum in the house of Joan of Arc at Domremy (Vosges) is shortly to be commenced. The sketches of the paintings of Lenepveu at the Panthéon are to be placed there, also the original casts for the statues of Joan of Arc, by Chapu, Frémiet, Paul Dubois, Chatrousse, and Pezieux. There are also to be some tapestries made especially for this object at Gobelins from the designs of M. Puvis de Chavannes, and the collection will contain the principal portraits of John of Arc, from the equestrian statue which is in the museum at Cluny to the picture of Ingres, with the pictures which represent her in all the most stirring events of her life, ——The line from Argenteuil to Nantes has just been opened. It passes through a very rich and picturesque part of the country, crossing the Oise by a very strong metal viaduct and going over the Seine on a stone bridge.——The Society of "Souvenirs Français" has commissioned M. Ridel, architect, of the town of Laval, to design a monument, which is to be erected in the town, in memory of the last battle fought by the army of the Loire, January 18, 1871. The monument is composed of a tumulus, ornamented with a figure of "La Patrie" veiled and surrounded with palms. The execution of the sculpture is confided to M. Eugène Legueult, sculptor. The inauguration is fixed for the month of September. ——An inhabitant of Toulouse, who has recently died, M. Maury, has left his fortune to his native town. Amongst many other charitable works, he has created two annual prizes for painting and sculpture, and one prize for architecture, which are to be distributed equally every year.——The new line from Grasse to Nice has just been opened.—— There is a project to build a large military hospital at St. Cloud, to replace the one now in Paris; the scheme is being violently opposed by the inhabitants of this pretty town, which is such a favourite resort with tourists.——A statue of Lazare Carnot, grandfather of the President, has just been inaugurated at Carnot (Algeria). —— The Prince of Monaco has just bought the magnificent domain of Bonrepos, one of the most beautiful of Tarn and Garonne.——We regret to learn the death of M. Eugène Chenantais, architect, at Nantes. He was late president of the Society of Architects of the Loire Inférieure, and member of the Central Society, the congresses of which he followed with great interest.

NORWAY.—The death is announced of Herr Nordan, a prominent Christiania architect. The coffin was born to the grave by eight leading architects.——An electrical exhibition has just been held in Christiania, and it is contemplated to hold an industrial exhibition there next year.——Work has now been commenced on the new Customs House in Christiania. The cost of the building itself is estimated at 26,000*l*., and the total cost of the entire establishment complete at about 56,000*l*. The work will occupy about three years.——The Storthing has decided upon the erection in Christiania of an historical museum. The frontage will have a length of 83 mètres, and there are to be three storys with basement. The entire cost of the structure is estimated at about 36,000*l*.——The ancient timber church at Hustad, in Throndhjem's Amt, purchased by the Society for the Preservation of Ancient Norwegian Monuments, is to be thoroughly repaired by Herr Hoflund, architect.

SWEDEN.—The catholic community in Stockholm has acquired a site for its projected cathedral at a cost of 16,000*l*. It is said that the funds required for the edifice are also secured. It is estimated that the building of it will occupy five years.——A monumental chapel is to be raised over the remains of the late Capt. John Ericsson, the famous inventor, in the cemetery at Fillipstad, and two premiums of 400 ks. and 200 ks. are offered for the best designs. ——New barracks are to be erected in Stockholm for the Horse Life Guards at a cost of 120,000*l*.—— The Society of Artists in Stockholm has arranged a grand lottery of pictures, in order to raise funds for a new exhibition building, to which all leading Swedish artists have contributed, including Prince Eugen.——The Swedish Crown Office has decided to purchase the site of the former Swedish Theatre or Opera House, Stockholm, for a sum of 25,000*l*.

——A company has been formed for the purchase of the Circus in Stockholm, in order to rebuild it so as to form an industrial and art exhibition building with winter gardens. Plans, &c., for the new buildings have been prepared by Herr G. Lindgren, a well-known Stockholm architect.——A new so-called "villa suburb" is in course of being built three and a-half kilomètres from Stockholm on the sea shore.

DENMARK.—The death is announced of Professor Ove Petersen, a prominent Danish architect and a member of the Copenhagen Academy of Arts. He was the son of a porter in the Ministry of Finance, and rose step by step to his high position by his natural genius.——Prof. Meldahl, the present architect to the so-called Marble Church or Cathedral in Copenhagen, upon which work has been in progress at intervals for over a century, has discovered twenty-three drawings in the archives of the ministry of the interior, showing that the French architect, Jardin, was not the original designer of this great edifice, but that this honour belongs to the Danish Col. Eigtved, the builder of Amalienborg Palace. He made his design to the church in 1754, or two years before Jardin, but the leading artistic idea is the same in both. The idea, says Prof. Meldahl, is the same as that underlying the design for the projected Berlin Cathedral.——It appears from a communication to the Rigsdag that the Danish Government has under consideration some very large building schemes in the ensuing years, considering its limited resources. They include a new National Library, to cost 122,000*l.*, exclusive of site; a new Metropolitan school; enlargement of the Theatre Royal; a new technical college for teachers; a new observatory; removal of the arsenal to a more convenient site (at a cost of 120,000*l.*); new barracks for the Life Guards (to cost 45,000*l.*); and finally there are the old plans for the re-building of Christiansborg Palace, a new House of Parliament, and new central railway station.

BERLIN.—The result of the competition for a suitable model of the memorial monument to Emperor Frederick III., which is to be placed on the battlefield of Woerth, shows three sculptors, classed first and equal. They are Herr Baumbach, Herr H. Hidding, and Professor R. Maison. The architect, Herr Pfann, one of the winners of the Great Memorial Competition, assisted Professor Maison in the conception of his design, whilst the architectural draughtsman, Herr Rieth, helped Herr Hidding. Both architects are members of the *atelier* of the new Houses of Parliament in course of erection.——The foundation-stone of the new central railway station at Cologne has been laid, with some ceremony.——An "artists' home" is to be erected in Rome, at the expense of the Prussian Government, for the benefit of artists and art students. The cost of Herr Genick's design, which is still subject to Ministerial approval, is estimated at about 400,000 francs. Besides ample accommodation for artists, who will only make a short sojourn in the "Holy City," there will be twenty-four large *ateliers* for resident painters and sculptors, and a mutual reception and exhibition hall.——The fashionable summer resort, Wiesbaden, is to have a new theatre. Designs were invited from Messrs. Fellmer and Helmer (Vienna), Messrs. Semper and Krutisch (Hamburg), and Professor Freuzen (Aix-la-Chapelle). Their work has been criticised by the Prussian Royal Academy of Works. Although isolated, the proposed building will be difficult to plan on account of the position of the site selected.——Another huge terminus station is to be erected in Germany. This time it is Dresden that wishes to compete with places like Frankfort. A competition for the design has been opened. From the "programmes" we see that the building will cost 275,000*l.*, the prizes offered have a total value of 1,000*l.*, the sending-in day is September 1, and the assessing jury will comprise of nine very prominent architects and engineers.——The Frankfort Baron Rothschild has offered the town of Osnabrueck some 6,000*l.* for its historical Imperial goblet. The Prussian Government will, however, try to prevent the sale.

ST. PETERSBURG.—An international competition for the design of a new bridge over the River Newa has been opened. There will be three prizes,—(1) 6,000, (2) 3,000, and (3) 1,500 rubels, and some extra prizes if the assessors think fit. The River Newa is 650 mètres broad at the point where the bridge is to cross it. Six million rubels are at the disposal of the authorities for building purposes. The sending-in day is in the middle of October. The French language can be used (Centralblatt der Bauverwaltung). The bridge will be a most important feature in the city; it will commence just opposite the Marble Palace and replace the old wooden one now in use.

DOVER HARBOUR.—The Admiralty Pier having been transferred to the Dover Harbour Board, Mr. Edward Druce, who formerly held the position of Resident Engineer in charge of the pier under the Board of Trade, has retired upon a pension, and the maintenance of the pier has been placed under the care of Mr. A. T. Walmisley, of Westminster, the Engineer to the Dover Harbour Board.

MISCELLANEOUS.

EDINBURGH ARCHITECTURAL ASSOCIATION.—The annual general meeting of this Association was held on the 26th ult. in the Architectural Hall, George-street, Edinburgh, Mr. W. W. Robertson, Vice-President, in the chair. In his report, the Treasurer stated that the membership was now 278, and the balance in hand 176*l.* The reports of the other office-bearers were submitted and approved. Mr. Robertson intimated a new departure of the Association in the fact that the institution would be housed next year in the Royal Institution, where a new field of usefulness would be entered upon in connexion with the School of Applied Art, in which the members of the Society were so much interested, and which the Association had undertaken to support in every possible way. The increased advantages of the Association would be only equalled by the increased opportunities of usefulness which the new scheme opened up to them. The following office-bearers were elected:—Past President, Mr. J. Kinross; President, Mr. W. W. Robertson; Vice-Presidents, Dr. R. Anderson, LL.D., and Mr. T. Ross.

OCKWELLS MANOR HOUSE.—In a "Note" on April 6, 1889, we adverted to the then contemplated sale by auction of the Ockholt, latterly Ockwells, Manor-house and grounds, about 21½ acres, in Bray parish, Berkshire. The sale was effected on June 4 of that year, at a bid of 2,500*l.* That same property, together with a farmhouse and 360 acres of land, will again be put up at auction, at the Mart, in July next. To what we said before as to the antiquity of the house, we may now add that it was built by John Norreys, Master of the Wardrobe to King Henry VI. and Esquire of the body to Edward IV., but not quite completed by him in 1465. For by his will of that year,—he died in 1467,—he bequeaths "to the full building and making uppe of the chapell, with the chamber adjoyning, within my mannor of Okholt, in the parish of Bray, not yet finished,—xl. *li.*" A correspondent, writing to the *Gentleman's Magazine* of December, 1798, says that a considerable portion of the house, damaged by fire, was in ruins, to his own knowledge, twenty years previously. But the entrance-hall, the paved cloisters beyond, the great hall with minstrel's gallery, and some other interesting portions of the building, have been preserved.

THE NICARAGUA CANAL.—From a report just issued, it appears that last year a sum of 875,000 dols. was expended on the Nicaragua Canal works. The canal itself has now been completed for one mile to a depth of 17 ft., and a breadth of 270 ft. Of the ship railway, twelve miles have been completed.

HORNSEY MAIN ROADS ARBITRATION.—The Order of the Local Government Board on the reference from the Hornsey Local Board and the Middlesex County Council for the determination of the amount to be paid to the Board by the Council in respect of the cost of maintenance and repair during the year ending March 31, 1891, of the main roads within the Hornsey district (mileage about 2¾ miles) has only just been received, although the inquiry by Mr. Thomas Codrington, M.Inst.C.E., F.G.S., one of the Government Inspectors, was held so long ago as in the month of December last, occupying two whole days. The counsel engaged were Mr. Alexander Macmorran for the Board, and Mr. Alexander Glen for the Council. Mr. T. De Courcy Meade, M.Inst.C.E., Engineer and Surveyor to the Local Board, Professor Henry Robinson, M.Inst.C.E., Mr. E. Purnell Hooley, Nottingham County Surveyor, and Mr. F. Smythe, Surveyor to the Finchley Local Board, gave evidence on behalf of the Board, and Mr. F. H. Pownall, Middlesex County Surveyor, on behalf of the Council. The Council had offered to pay towards the cost of maintenance nineteen-twentieths of the amount, including establishment charges, but not exceeding the County Surveyor's estimate,—viz., 2,730*l.*,—of the net cost reasonably and properly expended, and offered their cheque accordingly, which was returned by the Board. The Board claimed to be repaid the total amount expended, including establishment charges. The amount awarded is 3,221*l.* 5s., being 491*l.* 5s. in excess of the amount offered. The costs incurred by the Local Government Board,—27*l.* 14s. 4d.,—are to be paid one half by each party, who bear their own costs of the reference. No reasons for the terms of the award are given. The accounts presented included a sum for footways according to the well-known Warminster case. The Hornsey Local Board, at their meeting held on Monday last, unanimously passed the following resolution:—"That the Streets Committee be and are hereby empowered to give instructions and make all necessary arrangements in regard to the amount to be paid to the Board by the Middlesex County Council in respect of the maintenance and repair and improvement of the main roads in the Board's district during the year ending March 31, 1892, and in regard to the negotiations and communications with the Council thereon, and, in case arbitration of the Local Government Board has to be resorted to, the instructing of counsel and engaging of skilled witnesses and otherwise."

FORESHORE IMPROVEMENTS, SOUTHPORT.—According to the *Southport Visitor*, the object of the Foreshore and Improvement Committee of the Southport Town Council, so far as relates to the scheme for the construction of a marine park and lake, and the effecting of other improvements on the north foreshore, may be said to be practically accomplished, and the formal opening of the park and lake by the Mayor, Alderman Dr. Pilkington, will take place on the 20th inst. The improvement scheme included, in addition to the construction of a marine park and lake, the widening of Nevill-street bridge, and the removal from it of the old lattice girders, as well as the widening of the promenade from the bridge to Seabank-road, and the continuation of the lower promenade from the pier to a point opposite Seabank-road. The width of the bridge has been increased to 86 ft., and has been cleared of all obstructions; the promenade itself has been widened to 40 ft., the carriage-way to 36 ft., and the footpath on the opposite side to 10 ft. This extends for over a quarter of a mile on the north side of the pier. The work of laying out the marine park into ornamental gardens and lawns is being executed by the Corporation's head gardener, Mr. Halewood. At the foot of the park, and separating it from the lake, is the lower promenade, 50 ft. wide, approached by five sloping pathways. It is laid with concrete, asphalted over. The lake is 27¼ acres in area. It is 920 yards long and over 200 yards across at the widest part, and there will be a uniform depth of 3 ft. of water. The lake can be emptied by means of two rows of outlet pipes 24 in. in diameter, and water can also be admitted by this means. The slopes are formed of concrete, and there is a footpath round three sides of it laid with the same material. The lower promenade is protected from the lake by iron railings. The harbour is 60 yards long by 60 yards wide, and the main landing-stage is 250 ft. in length by 50 ft. wide; whilst the small landing-stage fronting the boat-house is 180 ft. long and 24 ft. wide. At the entrance to the landing-stage is a ticket-office. The boat-house is a red brick building, the outside walls of which are relieved by rows of white enamelled bricks. The roof is railed round, and will be used as a promenade. The first boat-shed is 50 ft. square. The next boat-shed is 96 ft. long and 50 ft. deep, and beyond this is a cushion-room and a lumber-room. The promenade over the building is planked and caulked all the way along, except the portion over the cushion-room and lumber-room, which is laid with corrugated tiles. The boat-house is surmounted at one end by a large iron tank of 25,000 gallons capacity, standing on pillars. This will contain a supply of water for street-watering purposes. Another feature of the scheme has been the erection of a pavilion in the Marine Park. The roof of this building forms part of the promenade, and is supported by iron pillars. The inside walls are lined with white enamelled bricks, with rows of grey bricks at intervals. It is 220 ft. long and 48 ft. wide in the centre; it will hold about 1,500 persons, and will contain ample lavatory accommodation. The whole of the work has been executed under the direction of the Borough Surveyor, Mr. William Crabtree. The setting-out of the ground has been done by his son, Mr. Walter Crabtree, and since June last the Assistant Borough Surveyor, Mr. R. P. Hirst, has had the general supervision of the carrying out of the work.

CAPITAL AND LABOUR.

STRIKE OF BRICKLAYERS, REDDITCH.—According to the *Birmingham Gazette*, three months since the bricklayers of Redditch and district gave their employers notice that they should on June 1 require an additional ½d. an hour, their present rate of wages being 7d. per hour. It seems, however, that the masters declined to accede to the demand, and the result is that the whole of the men came out on the 31st ult. The number is about 70, and this throws out of employment a corresponding number of labourers. At the present time the building trade is extremely brisk in Redditch, and it is regrettable that the men and the employers have not been able to arrive at an amicable arrangement.

MASONS' STRIKE AT NELSON, LANCASHIRE.—On the 23rd ult., in consequence of the strike of masons and wallers in Nelson and district, about 200 labourers were prevented from resuming employment. At the request of the workmen, a conference took place between representatives of the masters and the men, but with no result, the masters adhering to their resolution not to concede the advance in wages from 8d. to 8½d. an hour until after the expiration of three months' notice, whilst the men were equally determined to adhere to the seven days' notice, which expired on the 21st ult.

MEETINGS.

SATURDAY, JUNE 4.

Edinburgh Architectural Association.—Annual Excursion, Drumlanrig Castle.

WEDNESDAY, JUNE 8.

Toynbee Hall, Whitechapel, E.—Mr. A. Waterhouse, R.A., on "The Architecture of the Thirteenth and Fourteenth Centuries." 8 p.m.

COMPETITION, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITION.

Nature of Work.	By whom Advertised.	Premium.	Designs to be delivered.
*New Masonic Hall	Newcastle-upon-Tyne Central Masonic Hall Co. Ltd.	50*l.* 25*s.*	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Flagging, Paving, &c.	Plymouth Corp.	G. D. Bellamy	June 7
Baptist Chapel, Barry, Glam.	Committee	do.	do.
Covered Playground, &c. Board School, Caldewgate	Carlisle School Board	T. Taylor Scott	do.
*Officer's House, Freshwater Gate (I.W.)	Admiralty	*Official*	do.
Iron and Steel Work	N. E. R. Co.	do.	do.
Sewering, Levelling, Paving, &c.	Mountain Ash L. B.	do.	do.
*Trial Boring, 200 ft. deep	East Cowes Local Bd.	Lemon & Blizard	do.
Offices, Store Rooms, &c. Pentre Rhondda	Y-trad Gas, &c. Co.	A. O. Evans	June 8
*Supply of Lime and Cement	Mile End Old Town Vestry	J. M. Knight	do.
Pipe Sewers, Manholes, &c.	Tynemouth R.S.A.	A. S. Dinning	June 9
Road Metal	East Stonehouse L. B.	*Official*	do.
House and Stable, Rose-row, Cwmbach, Aberdare		John Evans	June 10
Hotel, Treharris, South Wales	T. Jones	T. Roderick	do.
*Supply of Men and Horses for Watering Streets, &c.	Borough of Brighton	F. J. C. May	do.
*Supply of Portland Cement	do.	do.	do.
Ironwork, &c.	Cambrian Ry. Co.	*Official*	June 11
Additions, &c. to Hotel, Aberlour, N.B.		C. C. Doig	do.
Artificial Lake, Pontefract Park	Trustees	J. H. Greaves	do.
Technical School, Free Library, &c.	Darwen Corp.	J. Lane Fox	June 13
Sewage Works	Hanley Corp.	Jos. Lobley	do.
*Laying, &c. Cast-iron Pipes	Newark Corporation	H. Rofe	do.
*Covered Service Reservoir	do.	do.	do.
Boundary Wall, &c. St. Mark's, Leeds		Borough Engineer	June 14
*Unclimbable Hurdle Fencing and Gates	London County Council	*Official*	do.
*Six New Water Vans	Boro' of West Ham	L. Angell	do.
Additions, &c. Macallan Distillery, Speyside, N.B.		C. C. Doig	do.
*170 tons Cast-iron Pipes	St. Anne's-on-Sea L.B.	H. Bancroft	do.
Vicarage House, &c Trallong, Brecon	Rev. J. Williams	W. & T. Williams	June 15

CONTRACTS.—*Continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Alterations, &c. Gasworks	Leeds Corporation	*Official*	June 15
Water Supply, Parkmore, Dufftown, N.B.		Gordon & McBey	June 16
Vicarage House, Goytre, Abergavenny	Rev. J. D. James	E. M. Bruce Vaughan	do.
*Public Baths	Bilston Township Com.	C. L. N. Nelson	do.
*Erection of an Office for the Board	Reading Sch. Bd.	C. Smith & Son	June 18
Electric Lighting Works	Hanley Corp.	Jos. Lobley	June 20
*Reconstructing Bridge at Pontllogell	Montgomeryshire C.C.	*Official*	do.
*Filter Tunnel	Derby Corporation	T. & C. Hawksley	do.
*Sewers, Painting Work, &c. &c.	Acton L. B.	D. J. Ebbetts	June 21
*Higher Grade Board School	Wolverhampton S. B.	T. H. Fleeming	June 24
*Additional Asylum Buildings, Banstead	London County Council Asylums Committee	G. T. Hine	June 27
*Church, Crewe		Hicks & Charlewood	No date.
*Building Warehouse		T. F. Shaw	do.
*Green English Oak, Elm, and Ash	London Road Car Co. Ltd.	*Official*	do.
Suspension Bridge over River Wear, near Leamside		A. C. Chapman	do.
Rebuilding Inn, Shire Moor, near Backworth	R. Emmerson & Sons	Philip Spicer	do.
Additions to Large Works, Carlisle	Hudson, Scott, & Sons	G. Dale Oliver	do.
Dwelling-houses, &c. Stanley, Durham	Mrs. Stokoe	G. A. Kerrich Walker	do.
Hall, Market, Shops, &c.	Abertillery (Mon.) Market Hall Co.	Alfred Swash	do.
Restoration of Tower of Moulton Church, Northamptonshire	Committee	Edmund Law	do.
Reform Club, Wigan	do.	F. W. Simon	do.
Wood and Iron Erections, Netherfield-road, Liverpool		G. Dalton & Sons	do.
Five Cottages, Underwood, Plympton, Devon	W. J. Moon	Mr. Avery	do.
Twelve Houses, Armley, Leeds		C. F. Wilkinson	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
*Assistant, Borough Engineer's Office	Stockton-on-Tees Corp.	150*l.*	June 7
*Surveyor	Bermondsey Vestry	250*l.* &c.	June 15
*Sanitary Inspector	Plumstead B. of W.	3*l.*	June 21
*District Surveyor	County Borough of Sheffield	140*l.*	No date

Those marked with an Asterisk (*) are advertised in this Number. *Competitions, p.* iv. *Contracts, pp.* iv., vi., & viii. *Public Appointments, p.* xviii.

SATURDAY, JUNE 11.

Architectural Association.—Visit to new Music School, Harrow, Mr. E. S. Prior, architect; and to other school buildings and houses at Harrow. Meet at Harrow Church at 3 p.m.

Junior Engineering Society.—Visit to the Works of the Patent Victoria Stone Co., Stratford. 3 p.m.

RECENT PATENTS:

ABSTRACTS OF SPECIFICATIONS.

10,045.—WINDOWS: *S. J. Wilde.*—This invention relates to an appliance to prevent windows rattling. It is a clip formed in two separate parts, of brass or other metal, one part being fixed to the meeting-rail of the lower window-sash by means of screws, and the other to the meeting-rail of the upper sash in like manner. The appliance is stated to be self-acting, and can be used in conjunction with any sash-fastener.

10,106.—VENTILATORS: *E. Hatton.*—This refers to an invention for attaching an apparatus to hopper-shaped wall or window ventilators, or to any ordinary sashes and sliding frames for the interruption of smuts and dirt, the avoidance of draught, and for automatically cleaning the gauze forming a part of the apparatus. To carry the invention into effect, there is fixed on the top of a hopper-shaped ventilator a plain or corrugated wire gauze or perforated screen or cover for diffusing the air, avoiding draughts, and preventing smuts from passing into the room, the gauze being automatically cleaned by means of a brush kept in contact with the gauze when opening or closing the ventilator. At the sides a flexible tube is fixed, to prevent draughts from passing between the stationary and working parts.

11,013.—SASH-FASTENERS: *C. E. Lewin.*—This invention claims to be a strong, simple, and self-gripping burglar-proof appliance for window-sashes, sliding-panels, ventilators, and other fittings where it is desired that such fittings should be rendered secure from one side or from rattling. The invention consists in the use of curved or cam-like pieces of material suspended or supported upon a point placed at such a position in relation to its outline that its own weight, or a spring, or electro-motive force, or other suitable available force, causes the cam to press with an initial force against the frame of the window or other like part, not being the same part as that to which the cam itself is suspended or supported. The cam is fixed in such a position that the attempted opening or moving of the sash or sliding part will cause the cam fastener to tend to revolve around its point of support, thus causing a reaction between the two objects to which the cam is fixed and that to which it is caused to bear when revolved by the movement of the part first mentioned.

5221.—COWLS: *W. T. & R. Smith.*—This patent refers to what is described as an improved chimney top, cowl, or ventilator, the essential features of which are the employment of two vertical tubes or channels placed more or less parallel with each other, but not absolutely side by side, and not necessarily both of the same dimensions or contour externally or in cross-section. The top end of the one of the tubes or passages, intended to be the lower tube when finished, is bent or curved, or diverges from the vertical in any desired manner, and joins the upper tube at or about its centre. At this point suitable baffle plates are provided in such a manner, relatively to each other, that a down-draught entering the top of the upper tube is prevented from passing down the lower tube, as both ends of the upper tube being open, the down-draught passes harmlessly through it. At the same time, the baffle-plates do not obstruct the passage of the smoke or vitiated air, but provides a curved passage therefore from the lower to the upper tube, and this will there be met by the down-draught in the upper tube, in which case it would be carried thereby through and out at the lower end of the upper tube, consequently the down-draught in the upper tube, however severe, would tend to improve rather than deteriorate the up-draught in the lower tube.

NEW APPLICATIONS FOR LETTERS PATENT.

May 16.—9,217, J. Izod, Ornamentation in Clay, for architectural and other purposes.—9,235, J. Rymer-Jones, Refractory and Non-conducting Bricks, Blocks, Tiles, Slabs, and Pipes.—9,251, J. McGlashan, Ornamentation and Decoration of Walls, Ceilings, &c.—9,258, J. Julhi, Hardening of Plaster, and the development of colours mixed therewith.—9,264, E. New, Device for Loading Brick from Machine.—9,279, F. Miller, Laying Wood Pavements.

May 17.—9,293, J. Brown, Chimney-pots.—9,332, A. Boult, Pavements.

May 18.—9,408, C. Taylor, Heating or Warming Dwelling-houses, Warehouses, Buildings, &c.—9,421, J. Jones, Construction of Casement Window-frames and Sliding-sashes.—9,427, J. Jeffreys, Jointing Cast-iron Pipes.—9,449, W. Williams, Hot-water Apparatus for Heating Greenhouses, Baths, and Buildings, &c.—9,462, H. Doulton and C. Morris, Joints for Earthenware Pipes.

May 13.—9,542, J. Castle, Mills for Grinding Cement, &c.

May 20.—9,583, R. Bocock, Siphon Cistern for Flushing Water-closets.

May 21.—9,660, W. Jones, Water or other Closet Seats and Frames.—9,698, J. Grubb, Sliding Gas Pendants.

PROVISIONAL SPECIFICATIONS ACCEPTED.

6,147, W. Davies, Coin Freed Apparatus for use in connexion with Water-closets.—6,440, J. Hunt, Roof Gutters.—7,008, R. Heyes, Electric Light Fittings.—7,071. W. Beaumont, Pneumatic Apparatus for Woodworking Machinery.—7,631, E. Waller and S. Sniffin, White Lead.—7,744, J. Bloomfield, Plaster.—8,384, H. Hunt, Mantelpieces for Fireplaces.—8,472, C. Hawkes, Covering for Walls, &c.—8,477, X. Charles, Kiln or Drying Apparatus.—8,583, F. Fawcett, Machinery for Making and Pressing Bricks and in Moulds therefore, and in Clay Mixing or Grinding Pans employed therein. 8,706, S. Moore, Electrical Fittings, such as Ceiling Roses and Cut Outs.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

9,819, W. Pain, Carpenters' and Joiners' Hammers. 10,270, R. Hodges and F. Lilley, Door Indicators.—12,049, W. Deeming, Pipes for Sanitary and other purposes.—5,598, J. Henderson, Joiners' Jobbing Bench. 7,502, W. Thompson, Plaster for Building Purposes.

SOME RECENT SALES OF PROPERTY:

ESTATE EXCHANGE REPORT.

MAY 23.—By *Jenkins & Sons*: 51 and 53, Cranfield-rd., Brockley, u.t. 74 yrs., g.r. 8*l.* 15*s.*, 450*l.*—By *Elliott, Son, & Boyton*: No. 148, Oxford-st., u.t. 49 yrs., g.r. 120*l.*; 5,200*l.*; No. 38, Great Portland-st., u.t. 38½ yrs., g.r. 35*l.*, r. 160*l.*, 1,550*l.*; 75, Great Portland-st., u.t. 39 yrs., g.r. 30*l.*, r. 150*l.*, 1,530*l.*; 77, Great Portland-st., and 26, Riding House-st., u.t. 39 yrs., g.r. 35*l.*, r. 210*l.*, 2,150*l.*—By *Wagstaff & Warman*: 278, Essex-rd., Canonbury, u.t. 25 yrs., g.r. 9*l.*, 225*l.*—By *Beale & Capps*: 20, Blagrove-rd., Notting Hill, u.t. 74 yrs., g.r. 7*l.*, r. 38*l.*, 300*l.*

MAY 24.—By *J. C. Platt*: 57 to 63 odd, Nasmyth-st., Hammersmith, u.t. 78 yrs., g.r. 20*l.*, 635*l.*—By *J. N. Goatley*: "Milford Lodge," Belmont-rd., Twickenham, u.t. 63 yrs., g.r. 10*l.*, 60*l.*; "Abney House," u.t. 63 yrs., g.r. 16*l.* 16*s.*, 90*l.*; 2, Carlton-villas, u.t. 63 yrs., g.r. 7*l.* 10*s.*, 90*l.*; "Percy Lodge," u.t. 63 yrs., g.r. 10*l.*, 50*l.*; Grove, Heath, and York-villas, u.t. 63 yrs., g.r. 22*l.* 10*s.*, 240*l.*; "Sion House," Manor-rd., u.t. 66 yrs., g.r. 10*l.* 10*s.*, 85*l.*; "Park Villa," and "Vine Lodge," Belmont-rd., f., 415*l.*—By *J. H. Hunter*: 82, Mountgrove-rd., Finsbury-pk., u.t. 74 yrs., g.r. 10*l.* 10*s.*, r. 45*l.*, 285*l.*; 67, Finsbury-pk.-rd., u.t. 74 yrs., g.r. 9*l.* 9*s.*, r. 46*l.*, 385*l.*; 58 and 60, Finsbury-pk.-rd. u.t. 74 yrs., g.r. 18*l.*, 18*s.*, r. 89*l.*, 745*l.*—By *A. Booth*: 64 and 66, Boston-st., Hackney, f., r. 44*l.* 4*s.*, 320*l.*—By *C. & H. White*: 27 to 37 (odd), Nutbrook-st., Peckham, u.t. 85 yrs., g.r. 30*l.*, 915*l.*; 22 and 24, Hampton-rd., Holloway, u.t. 75 yrs., g.r. 14*l.*, 200*l.*—By *R. Tidey & Son*: 135, Isledon-rd., Holloway, u.t. 67 yrs., g.r. 7*l.* 15*s.*, r. 40*l.*, 315*l.*; 14 and 16, Cook's-rd., Walworth, u.t. 61 yrs., g.r. 5*l.*, r. 69*l.*, 525*l.*; 141 and 143, Lorimore-rd., u.t. 61 yrs., g.r. 6*l.*, r. 83*l.*, 610*l.*; 4 to 16 even, Heron-st., u.t. 61 yrs., g.r. 14*l.*, 1,770*l.*—By *W. & F. Houghton*: "Brook's Croft," and 4½ acres, f., Walthamstow, 2,650*l.*; an enclosure of land adjoining, 5a. 3r. 25p., 2,350*l.*; a plot of freehold land, High-st., 1,260*l.*; 12, and 14, Vallentin-rd., f., 510*l.*; 8, Bythorn-st., Brixton, u.t. 72 yrs., g.r. 5*l.*, 200*l.*; 10, Glendall-st., u.t. 72 yrs., g.r. 10*s.*, 270*l.*—By *Furber, Price, & Furber*: F.g.r. of 9*l.* 9*s.*, Turtle-rd., Wandsworth, with reversion in 86 yrs., 185*l.*; f.g.r. of 15*l.* 15*s.*, Cumberland-villas, ditto in 86 yrs., 315*l.*; f.g.r. of 25*l.*, Warple Way, ditto in 91 yrs., 425*l.*; 365, Wandsworth-rd., and 1, Southville, f., 1,180*l.*; 11, Southville, f., r. 40*l.*, and a f.g.r. of 5*l.*, with reversion in 4 yrs., 630*l.*; f.g.r. of 5*l.*, Southville, with ditto in 4 yrs., 330*l.*; f.g.r. of 6*l.*, with ditto in 4 yrs., 280*l.*; f.g.r. of 81*l.*, with ditto in 4 yrs., 3,910*l.*; 110 and 118, Cleveland-st., Fitzroy-sq., f., r. 95*l.*, 1,875*l.*; "Norfolk House," Kew-rd., Richmond, u.t. 77 yrs., g.r. 27*l.* 10*s.*, r. 155*l.*, 1,900*l.*; f.g.r. of 20*l.*, Paul-st., Finsbury-sq., with reversion in 18 yrs., 1,350*l.*; f.g.r. of 9*l.*, Bradley-st., Wandsworth.rd., with reversion in 46 yrs., 210*l.*; f.g.r. of 31*l.*, Dawlish-st., Wandsworth-rd., with reversion in 45 yrs., 920*l.* By *Humbert, Son, & Flint* (at Watford): "Linden Villa," Chalk Hill, Bushey, f., r. 40*l.*, 700*l.*; eight plots of freehold land, Merry Hill-lane 120*l.*; a plot of freehold land, 75*l.*; 118, 120, and 122, High-st., Watford, and seven cottages, f., 1,632*l.*

MAY 25.—By *A. Savill & Son*: Roydon Mill and 13a. 2r. 30p., f., Roydon, Essex, 1,800*l.*; "Grove Lodge," and "Baker's Farm," Sawbridgeworth, 142a. 3r. 18p., f., 6,960*l.*; "The Butcher's Arms," c., Hermon-hill, Wanstead, 770*l.*—By *E. Tomkins*: No. 13, "Caton Lodge," Streatham-hill, u.t. 56 yrs., g.r. 42*l.*, r. 350*l.*, 3,525*l.*—By *W. B. Hallet*: 78, Gloucester-st., Pimlico, u.t. 41 yrs., g.r. 10*l.*, r. 60*l.*, 660*l.*; 20, 24, and 26, Brackenbury-rd., Hammersmith, u.t. 71 yrs., g.r. 21*l.*, r. 90*l.*, 615*l.*—By *Woods & Snelling*: 13, Fleur-de-Lis-ct., Fetter-lane, f., r. 40*l.*, 700*l.*; "Wildersdale," Alderhill, Sidcup, u.t. 83 yrs., g.r. 10*l.*, r. 65*l.*, 700*l.*; 7, Cargreen-rd., Norwood, u.t. 72 yrs., g.r. 13*l.* 13*s.*, r. 50*l.*, 250*l.*—By *F. Jolly & Co.*: 88, Shakespeare-rd., Acton, f., 300*l.*; 21 and 22, Albion-sq., Dalston, u.t. 46 yrs., g.r. 14*l.*, 700*l.*; 24, Stainsby-rd., Poplar, u.t. 39 yrs., g.r. 5*l.* 10*s.*, r. 45*l.*, 450*l.*; 149, Graham-rd., Hackney, u.t. 64 yrs., g.r. 8*l.*, r. 40*l.*, 380*l.*—By *Talbot & White*: 83, 85, and 87, Coutts-rd., Mile End, u.t. 30 yrs., g.r. 10*l.* 10*s.*, 300*l.*; 89 to 115 (odd), Coutts-rd., u.t. 30½ yrs., g.r. 40*l.*, 1,400*l.*; 2, St. Thomas-rd., u.t. 30 yrs., g.r. 3*l.* 15*s.*, 115*l.*—By *Prothero & Morris*: "The Ferns," Lime-grove, New Malden, f., 1,050*l.*; The Residence, "Roselands," Billericay, and 7a. 2r. 18p., f., 700*l.*—By *W. Hall*: 4, Highgate-rd., and 1, Fortess-rd., Highgate, f. 800*l.*; 6, Highgate-rd., f., r. 33*l.*, 565*l.*; 3 to 9 odd, Fortess-rd., f., r. 120*l.*, 2,080*l.*; 112, Upper Fore-st., Edmonton, u.t. 11 yrs., g.r. 6*l.*, r. 50*l.*, 65*l.*—By *Inman & Co.*: 9, The Grove, St. John's Wood, u.t. 20 yrs, g.r. 6*l.* 6*s.*, 350*l.*; 40, Capland-st., Marylebone, u.t. 28 yrs., g.r. 4*l.*, r. 23*l.* 8*s.*, 95*l.*; 63, 79, and 81, Princess-st., u.t. 48 yrs., g.r. 16*l.* 10*s.*, r. 96*l.*, 975*l.*; 57 and 59, Salisbury-st., u.t. 28 yrs., g.r. 10*l.*, 400*l.*; 10A, 10 to 18, Weston-pl., u.t. 47 yrs., g.r. 27*l.* 10*s.*, 1,310*l.*; 32, Carlisle-pl., u.t. 47 yrs., g.r. 4*l.*, 160*l.*; 56, Richmond-st., u.t. 29 yrs., g.r. 5*l.* 10*s.*, 155*l.*; 6, Nightingale-st., u.t. 29 yrs., g.r. 3*l.* 3*s.*, 150*l.*; i.g.r. of 40*l.*, Little Grove-st., u.t. 23 yrs.,

no g.r., 455*l.*; i.g.r. of 26*l.* 16s., Salisbury-st., &c., u.t. 29 yrs., g.r. 9*l.* 2s., 230*l.*; i.g.r. of 58*l.* 9s., Nightingale-st., u.t. 29 yrs., g.r. 27*l.* 13s., 380*l.*; i.g.r. of 50*l.*, Carlisle-st., u.t. 29 yrs., g.r. *l.* 3s., 710*l.*; i.g.r. of 39*l.* 18s., Richmond-st., &c., u.t. 29 yrs., g.r. 16*l.* 16s., 310*l.*; i.g.r. of 10*l.*, Hatton-st., u.t. 29 yrs., no g.r., 160*l.*; i.g.r. of 82*l.*, Little North-st., u.t. 29 yrs., g.r. 3*l.*, 560*l.*; i.g.r. of 52*l.*, Orcus-st., u.t. 29 yrs., g.r. 20*l.*, 330*l.*; i.g.r. of 68*l.* 8s., Orcus-st., u.t. 29 yrs., no g.r., 700*l.*; i.g.r. of 16*l.*, Orcus-st., u.t. 29 yrs., 215*l.*; i.g.r. of 14*l.* 10s., Richmond-st., u.t. 29 yrs., no g.r., 190*l.*; i.g.r. of 22*l.* 10s., Henry-st., St. John's Wood, u.t. 27 yrs., no g.r., 320*l.*

MAY 26.—By *Thurgood & Martin*: 1 and 3, Edith-grove, Brompton, f., r. 120*l.*, 1,850*l.*; f.g.r. of 5*l.*, Edith-grove, with reversion in 34 yrs., 205*l.*; f.g.r. of 7*l.*, Edith-grove, ditto in 34 yrs., 870*l.*; f.g.r. of 7*l.*, ditto in 34 yrs., 355*l.*; "Grove House" and "Grove Cottage," Seymour-pl., f., r. 105*l.*, 1,630*l.*; a plot of freehold land, 410*l.*; 24, St. Leonard's-ter., Chelsea, u.t. 6 yrs., g.r. 7*l.*, r. 42*l.*, 120*l.*—By *C. R. Cross*: 2, Kildare-gds., Bayswater, u.t. 59 yrs., g.r. 8*l.*, r. 72*l.*, 950*l.*—By *Osborn & Mercer*: C.g.r. of 20*l.*, Kensington, with reversion in 60 yrs., 350*l.*—By *J. A. Smith*: F.g.r. of 10*l.* 10s., Seymour-pl., Battersea, ditto in 14 yrs., 800*l.*; 185, The Grove, Hammersmith, u.t. 61 yrs., g.r. 5*l.*, 360*l.*—By *C. C. & T. Moore*: 2 to 7, Homerton-ter., Hackney, f., 1,580*l.*; 11 to 15, Homerton-ter., f., 1,305*l.*; "South and East View" and "Avenue Cottage," 116, Morning-lane, f., area 25,500 ft., 1,150*l.*; "The Rookery," Clapham Common, f., r. 120*l.*, 2,740*l.*; 177 to 185 (odd), Eastfield-st., Limehouse, f., 360*l.*—By *Rushworth & Stevens*: 4, Bennett-st., Piccadilly, f., r. 200*l.*, 3,600*l.*—By *Newbon & Co.*: No. 71, Newington-causeway, and four cottages, f., 2,400*l.*; 69, Eden-grove, Holloway, f., r. 32*l.*, 370*l.*; 46, Loraine-rd., f., r. 0*l.*, 635*l.*; one-fourth share in 169 to 179, Upper-st., Islington, c., r. 1,696*l.* 13s. 4d., 5,350*l.*; 70, 72, and 74, Marquis-rd., Canonbury, u.t. 54 yrs., g.r. 15*l.*, r. 180*l.*, 1,790*l.*; 9, James-pl., and 1 to 6, Pear Tree-ct., Clapton, f., r. 106*l.* 4s., 750*l.*; 76, King Edward-rd., Hackney, u.t. 46 yrs., g.r. 8*l.* 15s., 440*l.*; 36 and 37, Hall-st., City-rd., u.t. 50 yrs., g.r. 12*l.*, r. 76*l.*, 680*l.*—By *Briant & Sons*: No. 136, Fenchurch-st., f., r. 491*l.*, 8,300*l.*; 204 and 205, Blackfriars-rd., Blackfriars, f., r. 133*l.*, 2,420*l.*; 11, Eagle-ct., Clerkenwell, f., r. 40*l.*, 560*l.*; 6, Flodden-rd., Camberwell, u.t. 24 yrs., g.r. 11*l.*, 460*l.*; 8 and 10 Albion-st., Rotherhithe, f.r. 38*l.* 7s., 450*l.*; 34, Clarence-st., f. 150*l.*; f.g.r. of 35*l.*, Jamaica-rd., Bermondsey, with reversion in 36 years, 630*l.*—By *Stimson & Sons*: 159, Bancroft-rd., Mile End, f. 300*l.*; 7, Lammas-pk.-rd., Ealing, u.t. 65 yrs., g.r. 6*l.*, r. 26*l.*, 300*l.*; f.g.r. of 64*l.*, Ware-st., Kingsland, with reversion in 40 yrs., 1,600*l.*; f.g.r. of 32*l.*, Oxford-ter., Islington, ditto in 65 yrs., 840*l.*; f.g.r. of 32*l.* Chamberlain-st., Regent's-pk., ditto 41 yrs., 800*l.*; f.g.r. of 27*l.*, Great Chapel-st., Westminster, ditto 59 yrs., 760*l.*; f.g.r. of 21*l.*, Earl's Court-rd., &c., Kensington, ditto, 68 and 63 yrs., 800*l.*; f.g.r. of 18*l.* 10s., London-rd., Clapton, ditto, 88 yrs., 675*l.*; f.g.r. of 17*l.* 10s., Lansdown-hill, Norwood, ditto, 24 yrs., 470*l.*; f.g.r. of 12*l.*, Grove-lane, Camberwell, ditto, 76 yrs., 300*l.*; f.g.r. of 2*l.*, Ives-st., Chelsea, ditto, 31 yrs., 105*l.*; l.g.r. of 69*l.*, Holland-rd., Brixton, u.t. 30 yrs., 950*l.*; i.g.r. of 15*l.*, Hackford-rd., u.t. 7¼ yrs., g.r. 5*l.*, 31*l.*; Nos. 94 and 96, Upper Kennington-lane, c., r. 97*l.*, 1,296*l.*; 100, Upper Kennington-lane, c., r. 45*l.*, and c.g.r., 780*l.*—By *Debenham, Tewson, & Co.*: F.g.r. of 150*l.*, Bush-lane, Cannon-st., without reversion in 71 yrs., 4,600*l.*; "The Cock Hotel," Sutton, f., r. 210*l.*, 10,100*l.*; "The Red Lion," Parliament-st., Westminster, f., 10,250*l.*; "The Red Lion," Duke-st., Manchester-sq., f., 2,860*l.*; "The Volunteer" Public-house, Baker-st., u.t. 9 yrs., g.r. 20*l.*, 710*l.*; 4, Tregunter-rd., Kensington, u.t. 45 yrs., g.r. 9*l.*, r. 100*l.*, 900*l.*; 8, Orchard-st. Portman-sq., u.t. 21 yrs., g.r. 20*l.*, r. 131*l.* 10s., 1,350*l.*; 37 to 43 (odd), Westminster-bridge-rd., u.t. 41 yrs., g.r. 8*l.*, r. 473*l.*, and stabling in Whitehorse-yd., 3,550*l.*—By *Farebrother, Ellis, & Co.*: Six freehold cottages, Chaseside, Enfield, 620*l.*; f.g.r. of 22*l.* Iffley-rd., Hammersmith, with reversion in 73 yrs., 560*l.*; f.g.r. of 78*l.*, Kilmarsh-rd., ditto, 73 yrs., 1,930*l.*; f.g.r. of 143*l.*, Sutherton-rd., ditto, 73 yrs., 3,469*l.*; f.g.r. of 62*l.*, Glenthorn-rd., ditto, 73 yrs., 1,834*l.*—By *Messrs. Woods* (at Putney): 81 and 83, Chelverton-rd., Putney, u.t. 94 yrs., g.r. 15*l.* 10s.; and 9 to 15 (odd), Erpingham-rd., u.t. 82 yrs., g.r. 24*l.*, 2,150*l.*

MAY 27.—By *C. P. Whiteley*: 138 and 140, Portland-st., Walworth, u.t. 76 yrs., g.r. 10*l.*, 360*l.*; 18, 20, 26 to 32 even, Aylesbury-st., u.t. 16 yrs., g.r. 17*l.* 5s., 615*l.* By *White & Sons*: "Warwick Villa," Holmwood-common, Dorking, f., 1,000*l.* By *Baker & Sons*: F.g.r. of 29*l.* 10s., Forster-rd., Croydon, with reversion in 73 yrs., 560*l.* By *R. Reid*: 97, Dean-st., Soho, f., 740*l.*; 56 to 59, Bolingbroke-grove, Wandsworth-common, f., r. 130*l.*, 1,475*l.*; 49, Edith-grove, Brompton, u.t. 72 yrs., g.r. 4*l.*, r. 46*l.*, 430*l.*; f.g.r. of 90*l.*, Whitcombe-st., Pall-Mall, reversion in 82 yrs., 2,250*l.* By *E. Owers*: 13, Crossfield-rd., Hampstead, u.t. 86 yrs., g.r. 5*l.*, 885*l.*; 27, Gascony-av., u.t. 88 yrs., g.r. 10*l.* 10s., r. 42*l.*, 257*l.* By *A. & A. Field*: 23, Sceptre-st., Mile End, f., r. 33*l.* 16s., 235*l.*; 26, Sidney-st., u.t. 2 yrs., g.r. 3*l.*; 46, Clark-st., u.t. 5 yrs., g.r. 3*l.* 5s.; 14, Blakesley-st., u.t. 5 yrs., g.r. 3*l.*, 125*l.*; 319, St. Leonard's-rd., Bromley-by-Bow, u.t. 50 yrs., g.r. 3*l.*, 60*l.*; 19, Carlton-rd., Mile End, u.t. 34 yrs., g.r. 3*l.*, 185*l.*; 23, St. Thomas-rd., u.t. 58 yrs., g.r. 5*l.*, 120*l.*; 6, 7, and 8, Markfield-rd., Tottenham, u.t. 70 yrs., g.r. 13*l.* 10s., 165*l.*; 19 and 21, Royston-st., Bethnal Green, u.t. 32 yrs., g.r. 6*l.*, 425*l.*; 5A, 5 to 16, Reliance-sq., Shoreditch, f., 2,035*l.*; 18, 20, and 22, St. Paul's-rd., Limehouse, u.t. 33 yrs., g.r. 20*l.*, 360*l.*; 137, Plimsoll-rd., Finsbury-pk., u.t. 85 yrs., g.r. 5*l.* 15s., 265*l.*; f.g.r. of 12*l.*, Norton-st., Bethnal-green, reversion in 162 yrs., 295*l.*; f.g.r. of 8*l.*, ditto in 61 yrs., 200*l.*; 53, Manilla-st., Millwall, f., 210*l.*; 1, 2, and 3, Manor Cottages, f., 415*l.*—By *A. Prevost & Son*: Nos. 83 and 2A, The Cres., Peckham-rye, u.t. 12 yrs., g.r. 14*l.*, 75*l.*; i.g.r. of 126*l.*, Nunhead-cres., u.t. 12 yrs., g.r. 48*l.*, 460*l.*; No. 192, Commercial-rd., E., u.t. 8 yrs., g.r. 5*l.*, r. 50*l.*, 115*l.*; f.g.r. of 29*l.*, The Portway, West Ham, reversion in 73 yrs., 587*l.*; f.g.r. of 5*l.*, Dirleton-rd., ditto in 73 yrs., 1,110*l.*; f.g.r. of 3*l.* 10s., The Portway, ditto in 74 yrs., 150*l.*; f.g.r. of 37*l.* 5s., Church-st., ditto in 5 yrs., 615*l.*; 1 and 2, Roslyn-cottages, and 50 and 52, The Portway, f., 490*l.*; 53, Church-st., f., r. 22*l.*, 420*l.*

[*Contractions used in these lists.*—F.g.r. for freehold ground-rent; l.g.r. for leasehold ground-rent; i.g.r. for improved ground-rent; g.r. for ground-rent; r. for rent; f. for freehold; c. for copyhold; l. for leasehold; e.r. for estimated rental; u.t. for unexpired term; p.a. for per annum; yrs. for years; st. for street; rd. for road; sq. for square; pl. for place; ter. for terrace; cres. for crescent; yd. for yard, &c.]

PRICES CURRENT OF MATERIALS.

TIMBER.		
Greenheart, B.G. ton	9/0/0	0/0.0
Teak, E.I., load	9/10/0	15/0/0
Sequoia, U.S.ft.cu.	2/3	3/0
Ash, Canada load	2/10/0	4/0/0
Birch, do.	3/5/0	4/10/0
Elm, do.	3/10/0	4/15/0
Fir, Dantzic, &c.	1/10/0	3/10/0
Oak, do.	3/0/0	5/5/0
Canada.....	5/10/0	7/0/0
Pine, Canada red	2/10/0	3/10/0
Do, yellow	2/10/0	5/0/0
Lath, D'ntsic, fath	5/0/0	6/0/0
St. Petersburg	5/0/0	7/0/0
Deals, Finland, 2nd & 1st std 100	8/0/0	9/10/0
Do, 4th & 3rd..	7/0/0	8/0/0
Do. Riga	7/0/0	8/0/0
St. Petersburg, 1st yellow ..	11/0/0	14/10/0
Do. 2nd yellow	8/0/0	10/0/0
Do. white	7/10/0	10/10/0
Swedish	7/10/0	15/10/0
White Sea	8/0/0	17/10/0
Canada, Pine 1st	20/0/0	26/0/0
Do. do. 2nd....	14/10/0	16/0/0
Do. do. 3rd, &c.	8/0/0	10/5/0
Do. Spruce. 1st	8/10/0	11/0/0
Do. do. 3rd & 2nd.....	6/15/0	8/0/0
New Brunswick	7/0/0	7/10/0
Battens, all kinds	8/10/0	15/10/0
Flooring Boards, sq., 1 in. prep. 1st	0/8/0	0/14/0
Do. 2nd.....	0/7/0	0/11/0
Other qualities	0/3 6	0/7/6
Cedar, Cuba ..ft.	/3½	/4½
Honduras, &c.	/3½	/4
Mahogany, Cuba.	/4½	/6½
St. Domingo, cargo av	/4½	2/0
Mexican do. do	/4	/5
Tobasco do. do	/5½	/7
Honduras do..	/5½	/6½
Box, Turkey ton	4/0/0	13/0/0
Rose, Rio.....	10/0/0	20/0/0
Bahia	9/0/0	18/0/0
Satin, St. Domingo ....ft.	0/0/8	0/1/3

TIMBER (*continued*).		
Satin, Porto Rico	0/0/8	0/1/6
Walnut, Italian..	0/0/3½	0/0/7
METALS.		
IRON—Pig, in Scotland .....ton	2/1/0	0/0/0
Bar, Welsh, in London.....	5/17/6	6/0/0
Do. do. at works in Wales	5/7/6	5/10/0
Do. Staffordshire, in London	6/5/0	6/15/0
COPPER—British, cake and ingot	48/10/0	50/0/0
Best selected ..	51/0/0	51/10/0
Sheets, strong..	58/0/0	59/0/0
Chili, bars	46/7/6	46/15/0
YELLOW METAL lb.	0/0/5½	0/0/5⅝
LEAD—Pig, Spanish ....ton	10/15/0	10/17/6
English, com. brands	11/0/0	11/2/6
Sheet, English, 3 lbs. per sq. ft. and upwards ..	12/0/0	0/0/8
Pipe	12/10/0	0/0/0
ZINC—English sheet .....ton	25/15/0	26/0/0
Vieille Montagne.....	26/5/0	0/0/0
TIN—Straits	97/15/0	98/0/0
Australian	98/0/0	98/2/6
English Ingots	100/0/0	101/0/0
OILS.		
Linseed .....ton	18/0/0	18/2/6
Cocoanut, Cochin	24/0/0	0/0/0
Do. Ceylon	21/17/6	22/0/0
Palm, Lagos	22/5/0	22/10/0
Rapeseed, English pale	25/0/0	25/10/0
Do. brown	23/10/0	0/0/0
Cottonseed ref....	19/0/0	0/0/0
Oleine	21/18/0	22/10/0
Lubricating, U.S.	4/0/0	5/0/0
Do. refined	6/0/0	12/10/0
TAR—Stockholm barrel	0/19/0	1/0/0
Archangel	0/12/6	0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 12 *noon on Thursdays.*]

AYLESBURY.—Accepted for alteration and additions to house in New-street, Aylesbury, for Messrs. E. & F. Middleton. Mr. Guest Luckett, architect, Aylesbury:—
Jewell £140 0 0

[No competition.]

BIRTLEY (near Newcastle-on-Tyne).—For main sewerage and sewage disposal works for the town of Birtley. Mr. D. Balfour, engineer. 3, St. Nicholas Buildings, Newcastle-on-Tyne:—

Alex. Meston.....	£6,160 12 2	Robert Hudson, jun.	£4,055 0 0
John Band...	4,950 0 0	John Carrick	3,965 0 0
William Kennedy ..	4,797 0 0	Thomas Dixon,	
Kell & Groves	4,583 12 8	Houghton-le-Spring (accepted).	3,914 0 0
George Robson	4,464 8 3		

BOURNEMOUTH.—Accepted for furniture, &c., for the New Municipal Offices, Bournemouth. Mr. F. W. Lacey, Borough Engineer and Surveyor:—
J. J. Allen, Bournemouth..... £492 13 11

Cupboards, Desks, Counters, &c.
Spring & Sons..... 320 2 6

BURTON-ON-TRENT.—For erecting St. Paul's Church Institute, Burton-on-Trent. Mr. Reginald Churchill, architect:—

Hunter	£11,600	Walker & Slater	£10,200
Chamberlain Bros.	11,495	Hodges	9,930
Varlow	10,775	Lowe & Son, Burton*....	9,925
Stevenson	10,400	* Accepted.	

FOREST HILL.—For the erection of works for the Victoria Printing Works Company:—

Wells	£1,659	Dorrell & Co.	£1,275
Waddington & Co.....	1,369	Whitwick & George	1,162

HANLEY (Staffs.).—For erecting premises, Trinity-street, Hanley, Staffs., for Messrs. Grainger & Smith. Mr. Elijah Jones, architect. Quantities by the architect:—

A. & H. Salt	£2,482	J. Longden	£2,083
N. Bennett	2,385	Clarke.....	2,030
C. Cornes	2,120	A. Hall	2,010
G. Ellis	2,110	T. Godwin, Hanley*	1,990
		*Accepted,	

HANLEY (Staffs.).—For the erection of three houses, Heron-street, Fenton, for Mr. Richard Woolley. Mr. Elijah Jones, architect, 10, Albion-street, Hanley. Quantities by the architect:—

H. Goodwin	£1,050 0	A. Hall.....	£920 0
Challenor & Hughes....	967 17	Embrey	843 0
C. Cornes	925 0	T. Minks, Fenton*	842 0
		* Accepted.	

HIGH WYCOMBE.—Accepted for rebuilding the Rye Paper Mills (first contract). Mr. Arthur Vernon, architect, 29, Cockspur-street, London:—
C. H. Hunt £4,985 0 0

HYTHE (Kent).—Accepted for alterations, &c., to the "Swan" Hotel, Hythe, for Mr. T. Elliott. Mr. H. I. Newton, architect, 49, Victoria-street, Westminster, S.W.:—
W. N. Martin, Ramsgate £471 0 0

KEW.—For additions to the west wing of the Kew Observatory, for the Kew Committee of the Royal Society. Mr. John Lessels, architect. Quantities by Mr. Thos. Massey:—

Gascoyne & Blake	£797	C. Eldridge	£632
Lansdown & Co.....	646	J. Dorey & Sons	540

LEAVESDEN (Herts).—For alterations and additions to workshops at the Leavesden Asylum, for the Metropolitan Asylums Board. Messrs. A. & C. Harston, Architects, 15, Leadenhall-street, E.C. No quantities supplied:—

Windebank	£979	C. Miskin, St. Albans*	£940
		* Accepted	

LONDON.—For the completion of re-construction of St. Pancras Workhouse, Pancras-road, for the Guardians of the Poor of the Parish of St. Pancras. Messrs. A. & C. Harston, Architects, 15, Leadenhall-street, E.C. Quantities by Messrs. Corderoy & Selby, 19, Queen Anne's Gate, Westminster, and Mr. W. T. Farthing, 46, Strand, W.C.:—

Shillitoe & Son	£67,500	Lawrance & Son.....	£54,042
Reed, Blight, & Co.....	64,662	Leslie & Co.....	53,930
Mark Patrick	58,200	W. Brooks, Folkestone*..	50,861
Kirk, Knight, & Co.	56,648	* Accepted.	

LONDON.—Accepted for alterations and repairs, No. 99, Dean-street, Soho, W. Mr. G. Alexander Wright, surveyor:—
Turtle & Appleton, St. John's Hill, S.W. £224 1 0

LONDON.—For converting the large schoolroom of the Infants' department of the Kender-street School, Hatcham, into a hall; for erecting two additional classrooms to provide accommodation for 100 infants to take the place of the schoolroom, and for carrying out other works, for the School Board for London. Mr. T. J. Bailey, Architect:—

John Garrett & Son	£3,157 0 0	T. McCormick & Sons	£2,388 0 0
F. & H. F. Higgs....	2,493 0 0	F. J. Coxhead, Leytonstone*	2,335 9 9
J. Willmott & Sons	2,423 0 0		
		* Recommended by the Works Committee for acceptance.	

LONDON.—For erecting a laundry centre and technical room in connexion with the Stanley-street School, Deptford, and for carrying out other works, for the School Board for London. Mr. T. J. Bailey, Architect:—

John Garrett & Son	£3,309 0 0	F. J. Coxhead	2,692 7 9
L. Whitehead & Co.	2,866 0 0	James Smith & Sons	2,655 0 0
F. & H. F. Higgs....	2,804 0 0	Norris & Luke, No. 52, Grovedale-road, Upper Holloway*	2,488 0 0
John Willmott & Sons.....	2,733 0 0		
		* Recommended by the Works Committee for acceptance.	

LONDON.—For the enlargement of the Bell-street School, Edgware-road, by [395 places, and for carrying out other works, for the School Board for London. Mr. T. J. Bailey, Architect:—

B. S. Nightingale.....	£12,344	J. T. Chappell	£11,618
S. & W. Pattinson.....	12,106	John Willmott & Sons ..	11,476
Foster & Dicksee	11,781	John Mowlem & Co., Westminster, S.W.*	11,436
Thomas Boyce	11,700		
		* Recommended by the Works Committee for acceptance, less the sum of 1,683*l.* for the erection of schoolkeeper's house with technical room and laundry centre, which the committee propose to omit from the contract for the present.	

LONDON.—For providing and fixing heating apparatus on the low pressure hot-water system for the enlargement of the Holmes-road school, Kentish Town, which is now in course of erection, and for the existing infants' department, for the School Board for London. Mr. T. J. Bailey, Architect:—

W. G. Cannon	£750 10	G. Davis	£635 0
Rosser & Russell	749 0	Purcell & Nobbs	634 0
J. Fraser & Son	746 0	J. Wontner Smith, Gray, & Co., 81, Finsbury-pavement, E.C.*	618 10
J. & F. May	739 0		
C. P. Kennell & Co.....	650 0		
		* Recommended by the Works Committee for acceptance.	

LONDON.—For alterations and additions to the "Blue Boar" public-house, High-street, Stratford, E., for Mr. Geo. Kidd. Mr. James F. Wesley, architect and surveyor, 294, Romford-road, Forest-gate, E. Quantities by Mr. Geo. Francis, Prince's-road, Buckhurst-hill, Essex:—

Harris & Wardrop	£1,950 0	Alfred Reed & Son....	£1,834 15
Walker Bros.	1,899 0	W. Watson	1,656 0
Wm. Gregar & Son.....	1,868 10		

LONDON.—For alterations and fittings to the "Old Justice" public-house, Southwark Bridge-road, S.E., for Mr. W. Robertson. Mr. Fred. A. Ashton, architect, 3, Crooked-lane, E.C.:—

Hearle & Farrow	£798	W. Watson	£712
W. Shurmur	792	Coulsell Bros.	658
F. Voller	730	Snow & Co. (accepted)	564

LONDON.—For alterations and additions to the "Royal Hotel," Leytonstone-road, Stratford, E., for Mr. Wm. Dorton. Mr. Fred. A. Ashton, architect, 3, Crooked-lane, E.C.:—

Hearle & Farrow.....	£2,790	Walker Bros.	£2,198
W. Shurmur.....	2,515	W. Watson	2,175
Coulsel Bros.	2,446	J. & H. Cocks (accepted) ..	2,150
F. Voller.....	2,295	J. & F. Bane.....	1,889

LONDON. — For the erection of dwellings, Peacock-street, Newington-butts, for Mr. A. Rickarby. Mr. F. A. Powell, architect, 344, Kennington-road, S.E.:—

Young & Lonsdale	£808	Newton	£725
Downs	798	Burman.....	690

LONDON.—For the erection of flats, Ardville-road, Brixton, S.W., for Mr. J. Roycroft. Mr. E. L. Schneider, architect:—

F. & H. F. Higgs	£1,869	Taylor.....	£1,485
Young & Lonsdale	1,824	Cowper	1,300

LONDON.—For the erection of artisans' dwellings, Brief-street, Burton-road, Camberwell, S.E., for the Tenant Co-operators, Limited. Messrs. Goodey & Cressall, architects, 20, Bishopsgate-street, E.C.:—

Clarke & Bracy	£3,580	G. Dobson	£2,970
B. E. Nightingale	3,490	Co-operative Builders, Brixton*	2,896
Stimpson & Co.	3,337		
F. Dupont.....	2,975	* Accepted.	

LONDON.—Accepted for new fitting, &c., to the "George," East Harding-street, Fetter-lane, E.C., for the Burton and Lincoln Breweries, Limited, Burton-on-Trent. Mr. H. I. Newton, architect, 49, Victoria-street, Westminster, S.W.:—
H. S. & W. Close, Lincoln..... £593 0 0

LONDON.—For alterations and additions to No. 53, South Molton-street, W., for The Tayler Smith Electric Lighting Co. Mr. T. Tayler Smith, architect. Quantities by Messrs. Bushell & Crosier, 22, Great James-street, Bedford-row, W.C.:—

Sayers, Thos.	£733 11 5	Battley, R. G.†	647 0 0
Shoolbred & Co.*	728 0 0	† Time not stated.	
		* Accepted.	

LONDON.—For pulling down and rebuilding No. 81, Bishopsgate-street Within, for Mr. Arnold Gabriel. Mr. Lewis Solomon and Mr. E. Carrington Arnold, architects:—

Wm. Downs	£2,680	Scott	£2,448
Barlow & Roberts	2,679	Coulson	2,423
Holloway Bros.	2,640	Patman & Fotheringham	2,361
Reason	2,455	C. N. Philips	2,333

MIDDLETON (near Manchester).—For extensions and improvements to the Parish Church Schools, Middleton, near Manchester. Mr. T. A. Fitton, architect, Middleton:—

Young, Tinker, & Young	£1,127 0	Thomas Jackson	£1,030 0
E. Partington & Sons ..	1,052 0	John R. Mellakin	1,029 12
Jonathan Partington ..	1,050 0	J. Grundy & Sons*	1,017 0
		* Accepted.	

MIDDLETON (near Manchester).—Accepted for extensions to Kid Clough Dye Works, Middleton, near Manchester. Mr. T. A. Fitton, architect:—
Wm. Pollitt £1,500 0 0

MIDDLETON (near Manchester).—Accepted for erecting three cottages at Slattocks, near Manchester. Mr. T. A. Fitton, architect:—
E. L. Grindrod, Rochdale..... £467 0 0

MIRFIELD (near Halifax).—For street improvement works at Mirfield, for the Mirfield Local Board. Mr. F. H. Hare, Surveyor, Town Hall, Mirfield, Halifax. Quantities by Mr. Hare:—

Garforth Bros.....	£1,121 3 9
William Oates, Mirfield (accepted).....	1,029 9 4

NEWMARKET.—Accepted for the erection and completion of a stable block at "Wellington Villa," Newmarket, for Mr. Christopher Turner. Messrs. Bushell & Crosier, architects, 22, Great James-street, Bedford-row, W.C.:—
H. J. Linzell, Newmarket £196 10 0

[No competition.]

NEWMARKET.—Accepted for the erection and completion of four cottages on Cheveley-road, Newmarket, for Mr. Christopher Turner. Mr. Charles Crosier, architect, Newmarket. Quantities by Mr. Henry Bushell, 22, Great James-street, Bedford-row, W.C. :—

H. J. Linzell, Newmarket £830 11 0

[No competition.]

ORPINGTON (Kent). — For decorative repairs to Aynscomb House, Orpington High-street. Mr. St. Pierre Harris, architect and surveyor, 1, Basinghall-street, E.C. :—

Glassup Bros	£145 0	Taylor	£108 0
Owen.....	120 10	Somerford & Son*	99 10

* Accepted.

ORPINGTON (Kent).—For additions and repairs to residence at Orpington. Mr. St. Pierre Harris, architect, 1, Basinghall-street :—

Knight.....	£609 0	Somerford & Son	£378 0
Lowe.....	579 18	Stebbings & Pannell*....	480 0

* Accepted.

ST. ALBANS.—For about a mile and a quarter of 12 in. and 9 in. sewers, under the direction of the City Surveyor :—

J. Jackson	£1,888 8 8½	S. Capp.r	£1,682 10 6
J. Dickson (accepted)	1,840 0 0		

ST. PAUL'S CRAY (Kent). — For erecting detached private residence at Sandy-lane, for Mr. T. H. Nash. Mr. St. Pierre Harris, architect, 1, Basinghall-street. Quantities by Messrs. C. Stanger & Son :—

Norris & Son	£2,872	Holt & Son	£2,550
Crossley	2,842	Gregory & Co.	2,460
Knight	2,789	Somerford & Son	2,395

SIDCUP.—For the erection of eight cottages at Sidcup. Mr. Arthur Vernon, architect, 29, Cockspur-street, Charing-cross :—

Black.....	£3,250 0	Pearce	£2,547 0
Joyce.....	3,244 0	Barker	2,494 0
Linfield	3,225 0	Morgan	2,490 0
Munter	2,900 0	Trappit & Bartley	2,460 0
Payne	2,864 0	Pete s	2,440 0
Duthoit	2,789 0	Yefford.....	2,400 0
Richardson	2,757 0	Harris	2,140 0
Groome	2,730 0	Savers	1,985 0
Minton.....	2,649 0	Gale	1,880 0
Furness.....	2,600 0	Sunley.....	1,757 10
Heathfield	2,597 0		

SURBITON.—For erecting a house on the Crane's Park Estate, Surbiton, for Mr. A. R. Upjohn. Mr. A. R. Mason, architect, 23, High-street, Kingston-on-Thames :—

A. H. Harris £5,950		G. C. Mortimer	£3,160
H. Faulkner, jun.	3,287	R. Nicholes	3,030
J. Pil er & Son.....	3,204		

SURBITON-HILL.—For erecting and completing twelve houses for Mr. F. Butler. Mr. T. Timberley, architect :—

Dunn	£3,033	Sease	£2,984
Tomkinson	2,994	Jarvis, Surbiton*	2,975

* Accepted.

WAKEFIELD.—Accepted for drainage and other works for the Wakefield Rural Sanitary Authority. Mr. Frank Massie, Engineer, Tetley House, Wakefield :—

East Ardsley Drainage.—Contract No. 3.

George Wilson £96 17 6

Shitlington Drainage.—Contract No. 3.

Doleman & Booth..... 178 16 6

Stanley Drainage.—Contract No. 3.

Doleman & Booth..... 306 7 10

Stanley Drainage.—Contract No. 4.

F. W. Denholme & Co. 54 18 3

Isolation Hospital.—Disinfecting House.

W. Richardson 150 19 2

WALTHAM CROSS. — For kerbing and channelling certain roads at Waltham Cross, for the Cheshunt Local Board. Mr. Thos. Bennett, Surveyor :—

Thos. Porter.....	£987 0 0	Thos. Adams	£765 1 0
Jas. Bloomfield	931 9 8	John Jackson.....	749 6 10
Jno. Mowlem & Co. ..	917 0 0	W. Griffiths, Kings-	
Jas. Dickson	832 11 0	land-road, N.*.....	738 5 2

* Accepted.

[Surveyor's estimate, £743.]

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1892.

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14. HEREFORD	Feb. 6.	20. WORCESTER	Aug. 6.
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16. ELY	April 2.	22. ST. ASAPH ..	Sept. 3.
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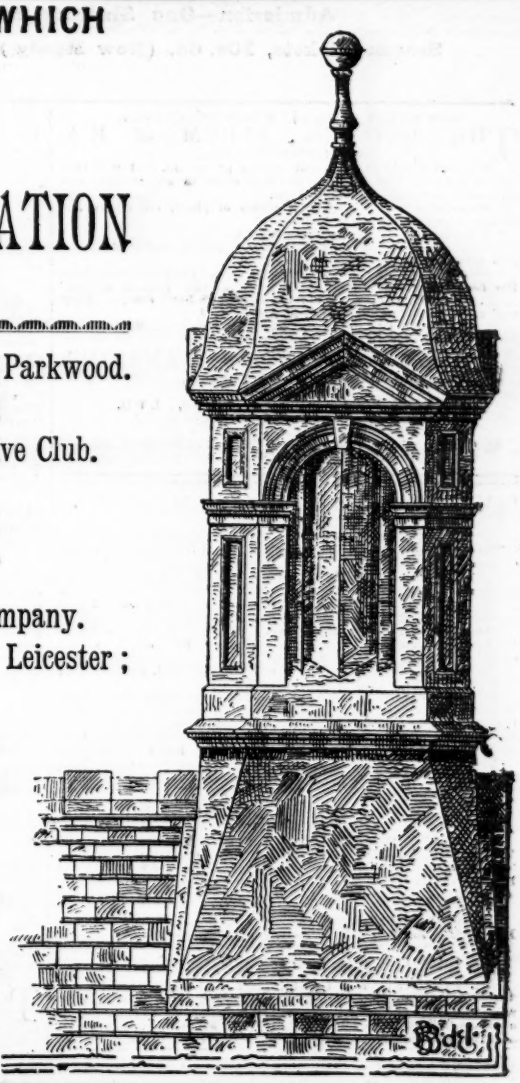

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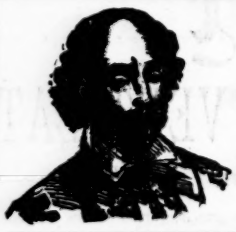

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THE PUBLIC HEALTH (LONDON) ACT, 1891.

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The salary proposed to be assigned to such Inspector is 3*l.* per week. Age between 25 and 45.

The appointment will be subject to the approval of the Local Government Board, and may be determined upon one month's notice on either side. The Inspector will be required to discharge all the duties of a Sanitary Inspector under "The Public Health (London) Act, 1891," and "The Sanitary Officers' (London) Order, 1891," made by the Local Government Board; and the Inspector will also have to discharge all duties of a Sanitary Inspector under all other Acts relating to the management, health, and government of the Metropolis. No compensation will be paid on abolition of office.

Applications, stating age, qualifications, and experience, must be made in candidates' own handwriting by letter, sent by post or delivered, and addressed "The Committee Clerk, Parochial Offices, Woodstock-road, Lee, London," not later than TWELVE o'clock at NOON on TUESDAY, the 21st JUNE, 1892. Copies only of not more than three recent testimonials may be sent at the same time. Canvassing prohibited.

By Order
GEORGE WHALE,
Clerk.

Central Office,
Old Charlton, London,
May 31st, 1892.

COUNTY BOROUGH of SHEFFIELD.

The Council require a competent SURVEYOR as DISTRICT SURVEYOR, to take charge of and be responsible under the Borough Surveyor for Roads, Streets, and Sewers in one division of the Borough.

Applicants must have had previous experience in the control of men, especially in sewer and road construction, be able to survey, level, and set out work, and measure up the same.

Salary 140*l.* per year.

Applications, stating age and previous experience and accompanied by copies of testimonials, must be addressed to the undersigned, and endorsed "District Surveyor."

J. W. PYE-SMITH,
Town Clerk.

Town Clerk's Office,
Sheffield,
May 30th, 1892.

BOROUGH of STOCKTON-ON-TEES.
BOROUGH ENGINEER'S OFFICE.

WANTED, an experienced ASSISTANT to SUPERINTEND SEWERAGE WORKS. Salary at the rate of 150*l.* per annum, payable monthly.

For particulars apply to the Borough Engineer. Applications, accompanied by not more than three recent testimonials, to be delivered to me not later than TUESDAY, the 7th prox.

K. F. CAMPBELL, A.M.Inst.C.E.
Borough Engineer.

Town Hall,
Stockton-on-Tees,
May 25th, 1892.

SURVEYOR WANTED.

The Vestry of the Parish of Bermondsey, London, REQUIRE the services of a SURVEYOR. The conditions on which the appointment will be made are as follows:—

That the person appointed reside in the parish, will be required to devote his whole time to the duties.

Candidates to state age and previous experience. Must be able to take out quantities. Must have passed either the Associate or Fellowship Examination of the Surveyor's Institution, and will be required to take entire control of all classes of workmen engaged in carrying out the work of the Vestry.

The salary to be 250*l.* with residence and taxes free. A guarantee to the amount of 500*l.* will be required. Canvassing personally or communicating with any member of the Board will disqualify.

Applications to be delivered, in the candidates' own handwriting, at the Town-Hall, by SIX o'clock on JUNE 15th, addressed, "Application for Surveyor."

Candidates are not to attend until written to.

J. HARRISON, Clerk.

Town Hall,
June 1st, 1892.

AN Energetic and Accurate QUANTITY SURVEYOR REQUIRED at once. Constant employment for a good man.—Apply with reference, and salary required, 7, Windsor-place, Cardiff.

WANTED, in a Civil Engineer's Office, Westminster (temporary), a First-class DRAUGHTSMAN PRINTER and LETTERER, accustomed to preparing details, and finishing plans and sections for main sewerage works. Also a JUNIOR, a good Tracer and Printer.—Age, references, salary, write B. H. B. Willings, 162, Piccadilly, London.

ARCHITECT'S GENERAL ASSISTANT REQUIRED at once. Must be a good quantity surveyor, with a knowledge of church work.—State age and salary expected, BRUCE VAUGHAN, Cardiff.

ARCHITECT'S GENERAL ASSISTANT WANTED. Must be a good draughtsman and competent quantity surveyor. Capable of preparing specifications, measuring-up builder's work, and accustomed to the general routine of a country office. None others need apply.—State age, experience, salary, and references to EDMUND JEEVES, Architect, Melton Mowbray.

ARCHITECT'S ASSISTANT (Thoroughly Competent) WANTED, in a provincial office. One accustomed to take off quantities.—State age and salary required, to No. 5,188, Locke's Advertising Offices, Newport, Mon.

ARCHITECT'S JUNIOR ASSISTANT WANTED, at once. Must be quick and neat tracer, good printer and colourist, and fair hand-writing desirable.—Apply, stating experience and salary required, to W. H. GIBBS & CO. 5, West Kensington-terrace, W.

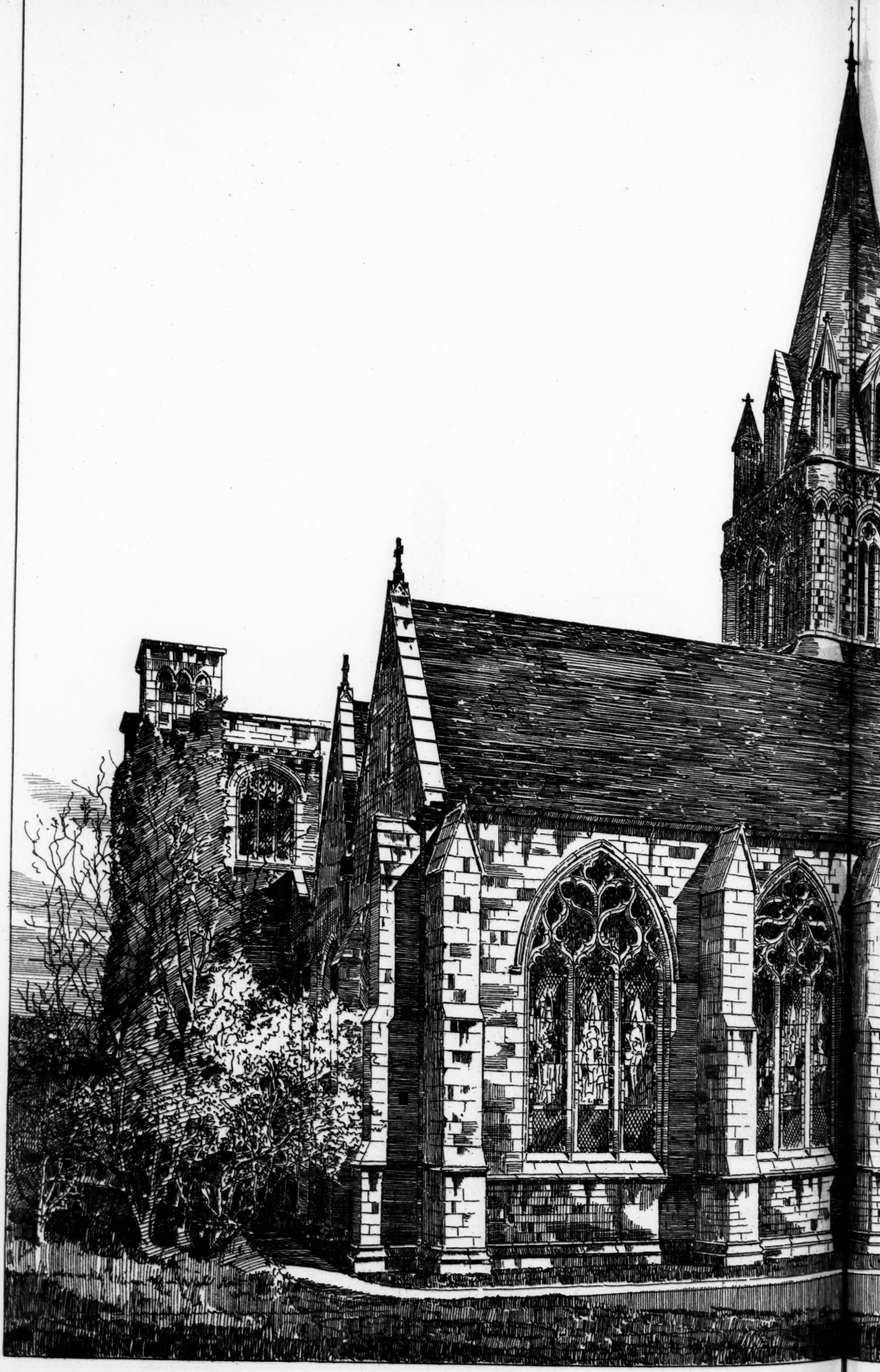
ENGINEERING ASSISTANT required at once for TEMPORARY ENGAGEMENT. Must be expert in levelling and experienced in sewerage and sewage disposal works.—Applications, stating age, particulars of former engagements and salary required, and enclosing copies of testimonials, to be forwarded to T. E. DICKINSON, A.M.I.C.E. Borough Surveyor, Hertford.

AN ARCHITECT with a good general practice has a VACANCY for an ARTICLED PUPIL, to live with Principal. Moderate premium.—Address Box 135, Office of "The Builder."

ARTICLED PUPIL.—VACANCY occurs for a well-educated gentlemanly youth in Contractor's business. Eastern counties.—Address Box 172, Office of "The Builder."

TO PARENTS and GUARDIANS.—The ENGINEER and SURVEYOR of a County Borough in the Eastern Counties has a VACANCY for a PUPIL. Every attention given.—Application by letter, in first instance, to A. B. care of No. 84, Priory-road, West Hampstead, London.

TRAVELLER REQUIRED by an old-established and well-known firm of Scotch Iron Founders, to call upon Architects, &c. One with a connexion among architects will have preference.—Apply, stating age, experience, and salary required, to ARCHITECT, care of Worrall & Robey, 137, Fenchurch-street, E.C.



Cathedrals of En and

No. 18. CHRISTCHURCH, OXFORD: FROM TH ORTH

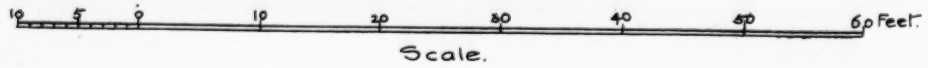
PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

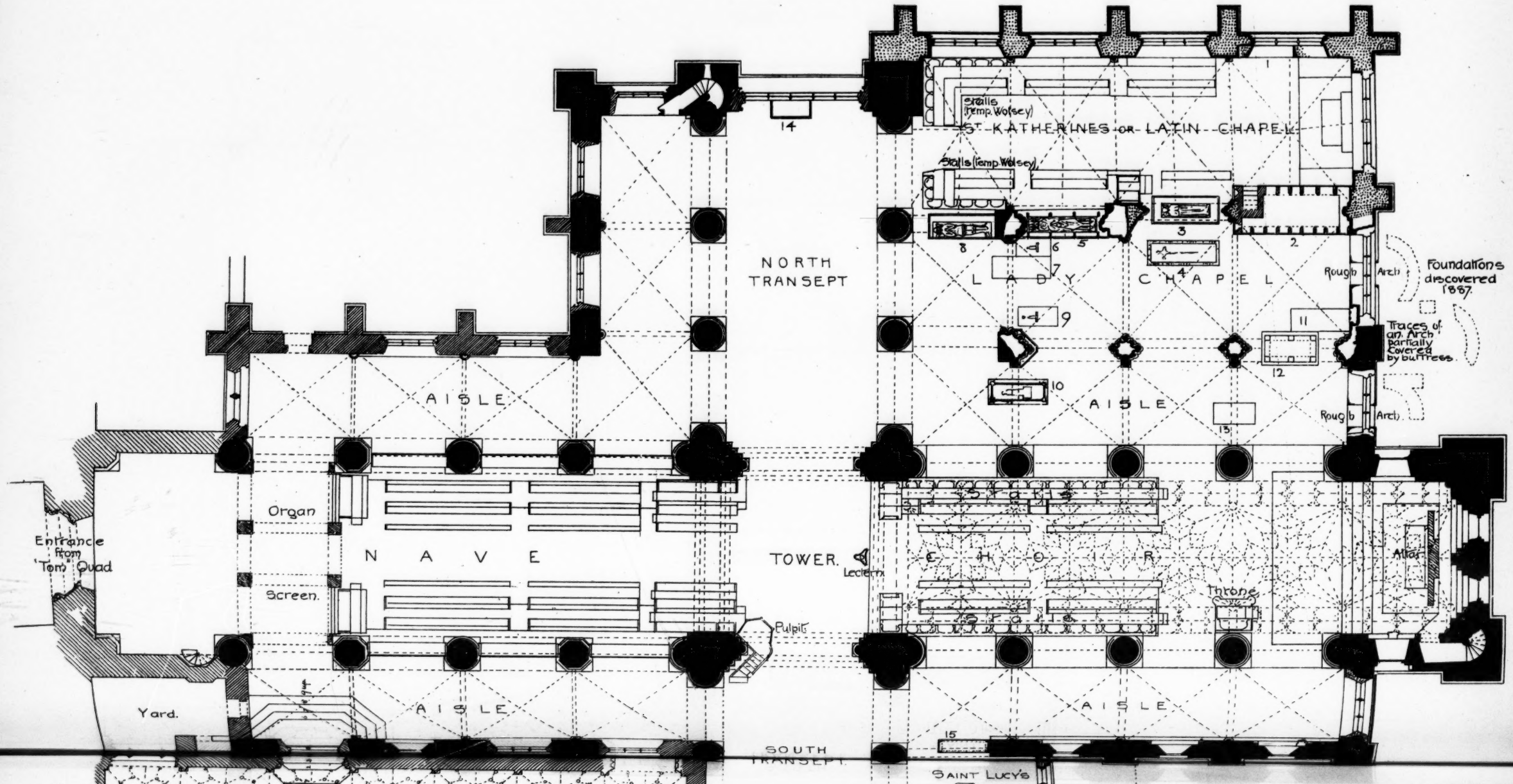
and Wales.

TH ORTH-EAST.—Drawn by Mr. Roland W. Paul.

CHRISTCHURCH CATHEDRAL, OXFORD.

GROUND PLAN.





SOUTH TRANSEPT.

SAINT LUCY'S Font.

CHAPEL.

Dr Pusey's Grave.

SLYPE.

CLOISTERS.

Foundations of Building now destroyed.

CHAPTER HOUSE

Modern stairs to room now used for chapter meetings

Bell Tower.

Ancient Refectory over.

Canon's Residence.

Dates.

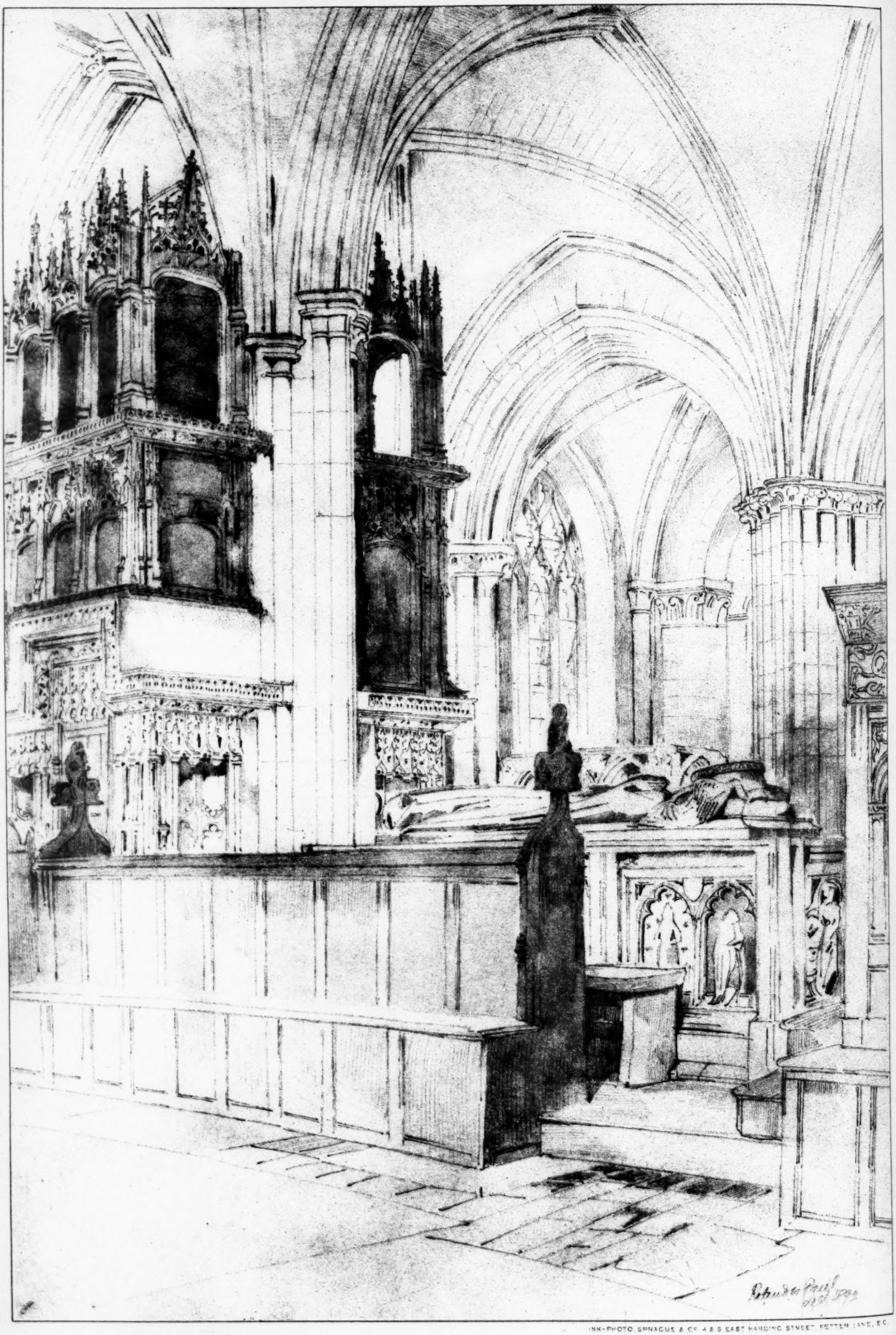
- Norman.
- Early English.
- Decorated.
- Perpendicular.
- Modern.

Monuments etc.

1. Recessed Tomb.
2. Monument (with wooden loft above).
3. Lady Montacute 1359.
4. Incised Slab. - Johan de Col··v·le
5. Prior Alexander de Sutton 1294-1316.
6. Brass - John Fitzalan.
7. Incised slab.
8. Sir George Nowers 1425.
9. Brass - Edward Courtenay.
10. Brass - James Coorthopp. d.1557 - Canon 1546.
11. Incised Slab
12. Fragments discovered of the Shrine of St. Frideswide.
13. Incised slab · Andreas de Solife.
14. Tomb of James Zouch. 1503.
15. Bishop King
16. Slab of Countess of Warwick (brought from Rewley Abbey).

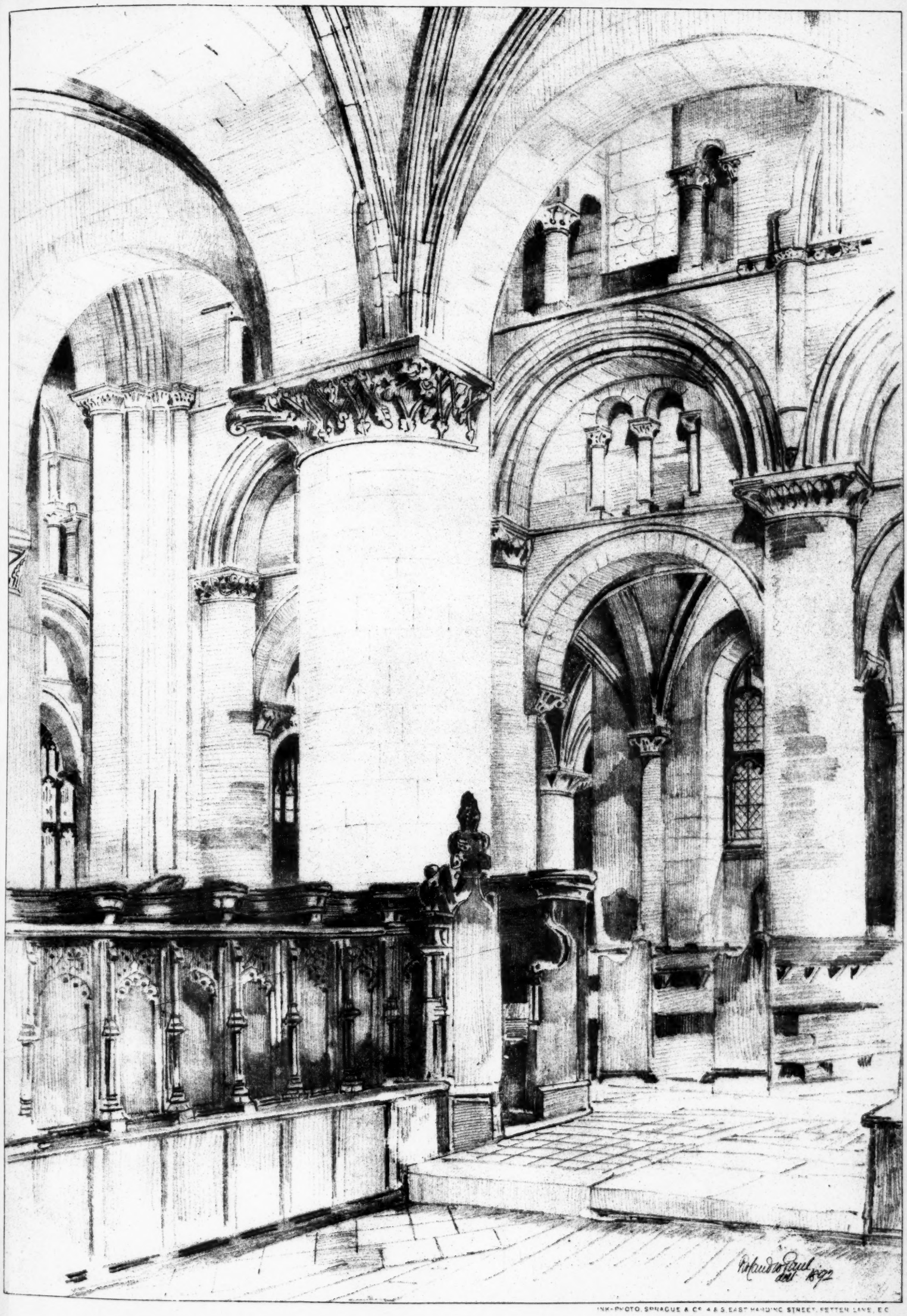
Roland Paul
Mens 25 Dec: 1892.

PHOTO-LITHO. SPRAGUE & Co 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.



INK-PHOTO. SPRAGUE & Co. 4 & 5 EAST HARDING STREET, FETTER LANE, E.C.

CHRISTCHURCH CATHEDRAL, OXFORD: VIEW ACROSS THE LADY CHAPEL.



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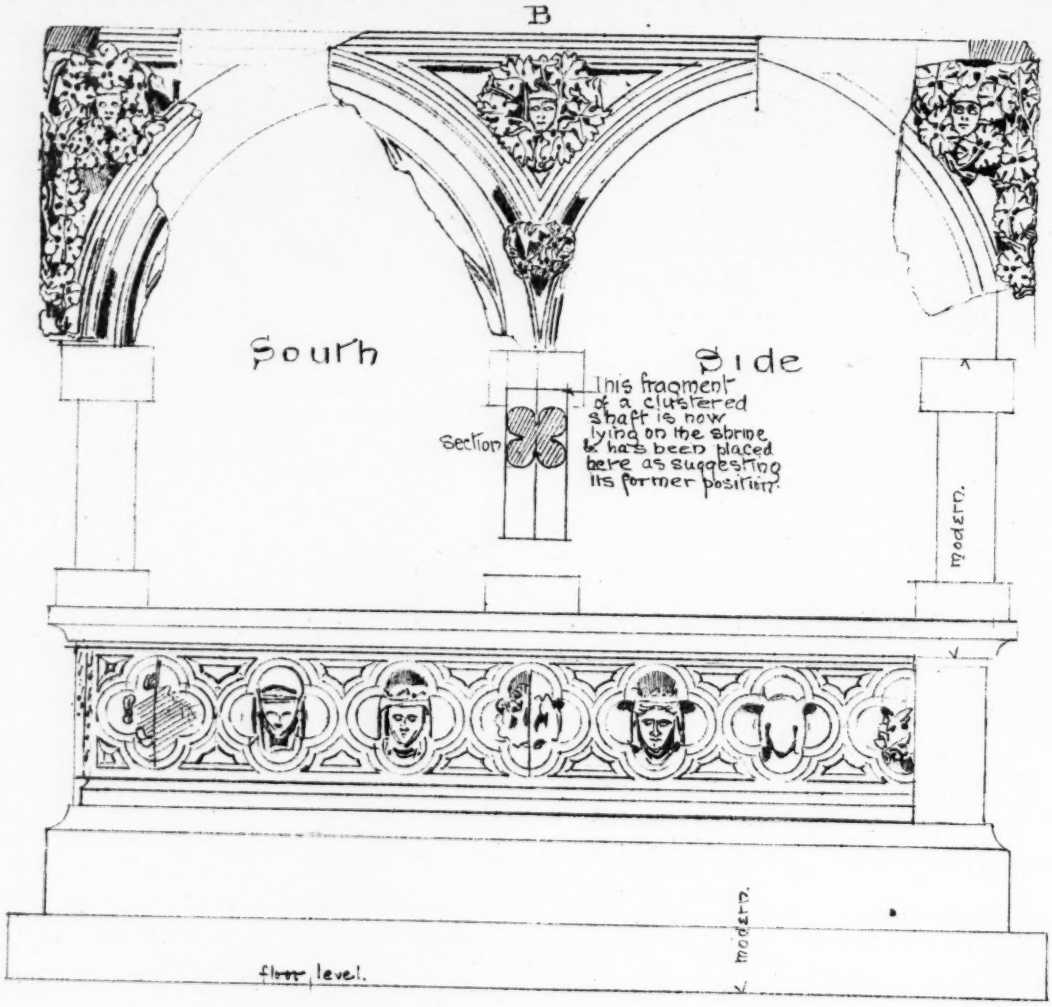
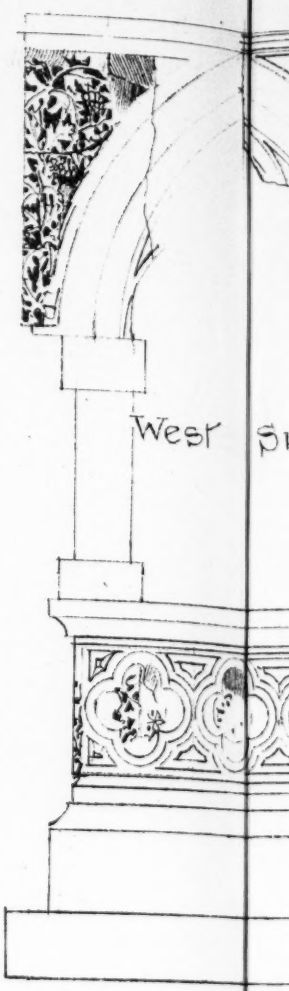
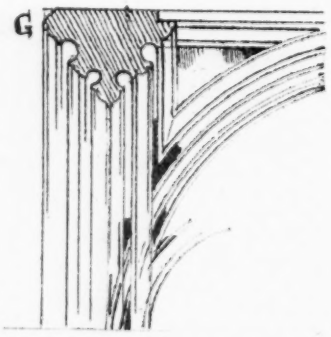
CHRISTCHURCH CATHEDRAL, OXFORD: VIEW ACROSS THE NORTH TRANSEPT.


B
South Side
This fragment of a clustered shaft is now lying on the shrine & has been placed here as suggesting its former position.
Section
modern.
modern.
floor level.



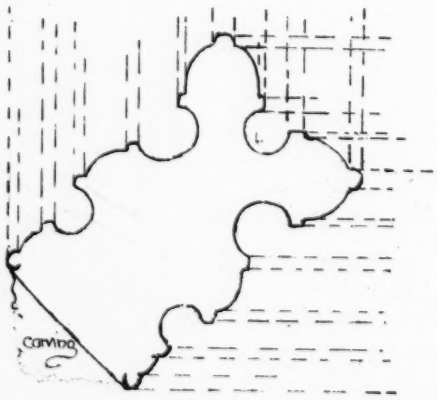


Section of End
shewing the interpenetration of mouldings at angle.

East Side

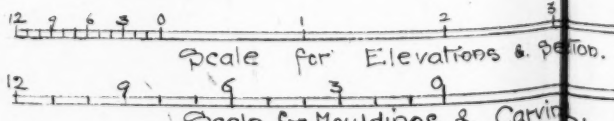
Details of Spandrils,

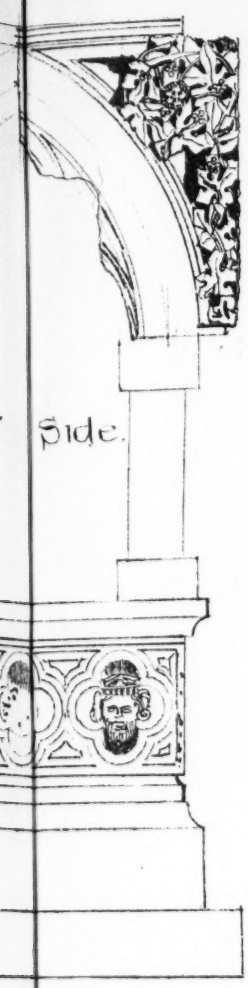
Sketch of Angle
(inside).

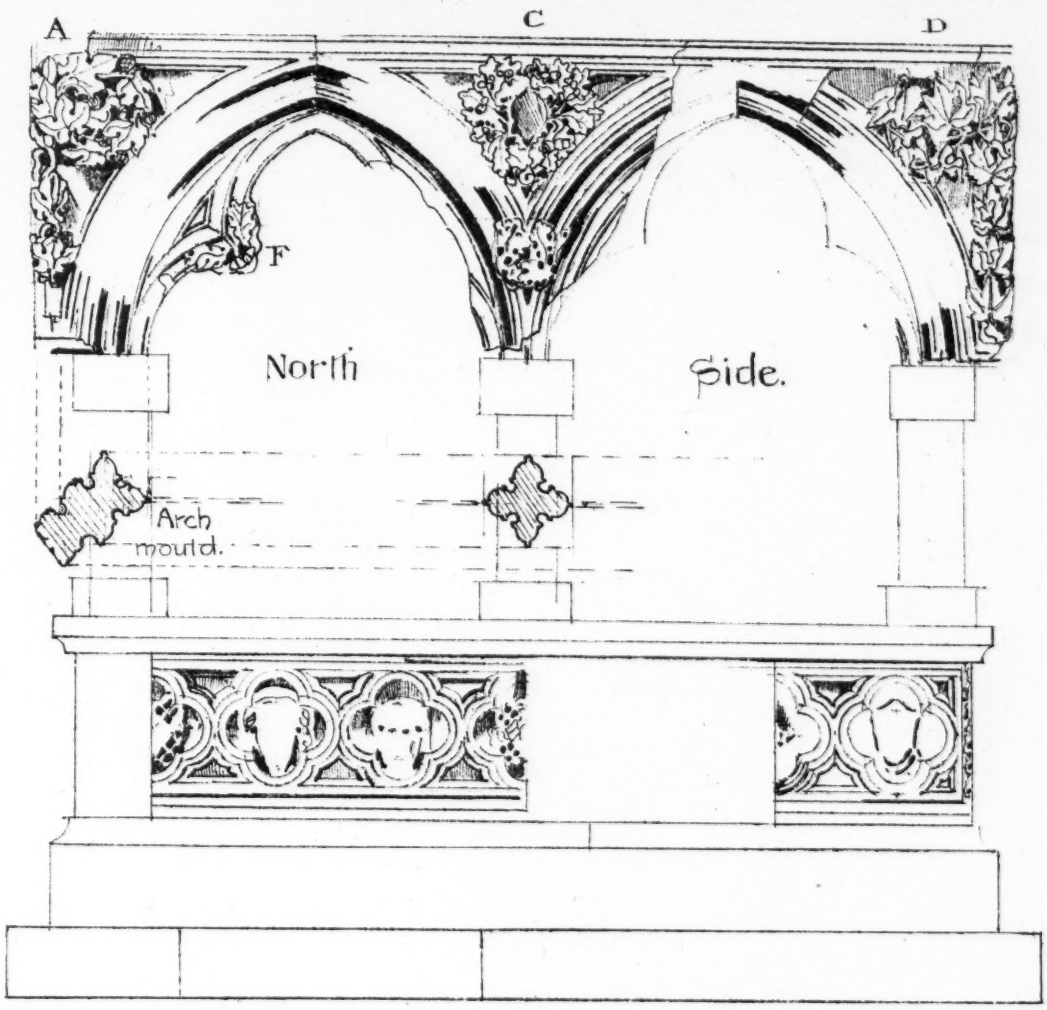


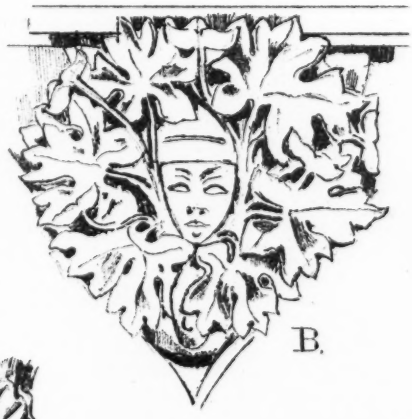
Section of Arch mouldings
(taken at angle just above springing)

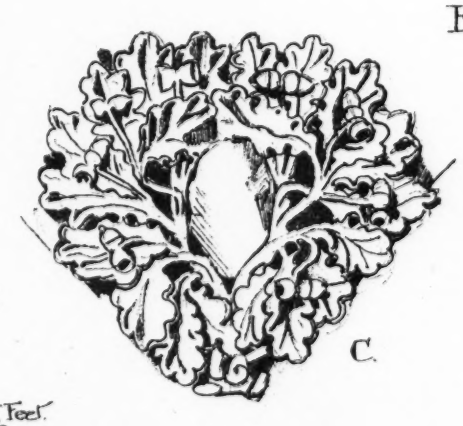
Cornice Moulding
(at G - see Section)











lls of the
ndrils, Cusps etc

3 4 5 Feet.
S. section.
1 Foot
arving.

Roland. to. Paul
mens. et del. 1892.

INK-PHOTO. SPRAGUE & Co 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

ORD: EMAINS OF THE SHRINE OF S. FRIDESWIDE.